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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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THE SHIP SUBSIDY BILL.

There is quite a difference of opinion in reference to the merits of the Hanna-Payne ship subsidy bill which is now in the hands of the Senate Committee on Commerce and its passage at the present session of Congress will be vigorously pushed. Several amendments to the bill have been suggested by Chairman Frye and have been adopted by the Committee. The most important of these amendments is one providing that all ships shall take 50 per cent. of their cargo capacity when leaving a port of the United States for a foreign port. In presenting this modification of the bill, Mr. Frye said that the effect of its corporation in the bill would be to increase the amount of cargo which must be taken, but that it would so distribute it amongst the various ships that there would be no inequality or injustice.

The cargo provision is much shorter than that of the old bill, and reads as follows: "No vessel shall be entitled to full compensation unless she shall have cleared from a port of the United States with cargo to the amount of 50 per cent. of her capacity for carrying commercial cargo."

The amendment relating to the granting of American registry to foreign built ships was made to further guard against fraud. Records now on file in the Treasury Department will show exactly what vessels of that description are to be admitted to American registry under the bill and thus avoid all dispute as to the total volume of the tonnage.

The variance of opinion as to whether the subsidy shipping bill as now drawn up with the amendments included is the best measure that could be devised, no doubt is actuated by sincere desire that the subject should receive the closest attention by members of Congress, and the bill, when finally passed, have incorporated in its provisions such inducements that our merchant marine will speedily be placed in the commanding position in the world's commerce to which it is justly entitled. A bill should be passed as soon as possible furthering this end, and if not entirely perfect, a beginning will have been made, and snch changes as may be found necessary in practice can be brought about by future legislation.

Senator Frye, who is sponsor for the bill, in addressing the Senate in explanation of it on December 4th, said in part:

"This great maritime nation is placed in a position humiliating beyond expression by the present condition of our merchant marine. With a boundless seacoast, unparalleled and unapproachable natural resources, ship-builders the equal of any in the world, the greatest exports in the world and every other argument in our favor, the United States has permitted its commercial rivals to seize the pathways of commerce and hold them practically to the exclusion of this country.

"Under present conditions it costs the United States from 40 to 80 per cent. more, principally in wages and food, to operate its ships than it costs Great Britain, and about 80 per cent. more than it costs Norway; and yet the United States is forced to compete under such a handicap with the encouraged and protected ships of foreign countries.

"Our national greatness cannot be fully rounded out while we are so dependent as at present on foreign shipping for our intercourse with the rest of mankind. At this time, political and commercial considerations demand of us a larger measure of strength and independence on the seas than ever in our history, yet never before have we been relatively so weak in transoceanic navigation."

The principal provisions of the ship subsidy bill as originally drawn are as follows:

Subsidies to American vessels in foreign trade, based on gross tonnage of ships and mileage. Subsidies are calculated to offset the difference in the cost of building and navigating American vessels compared with British vessels. American vessels already built are subsidized for ten years; vessels to be hereafter built for twenty years. The maximum subsidy payable in any one year is $9,000,000. At the present time the expenditure would be $4,500,000 a year.

When $9,000,000 is reached subsidies are to be reduced pro rata as American shipping increases. Uniform subsidy to all American vessels of 1½ cents a gross ton for each 100 nautical miles, not exceeding 1,500 miles, sailed outward bound. The same rate for each 100 miles, not exceeding 1,500, sailed homeward bound, and 1 cent a gross ton for each additional 100 nautical miles sailed, on each entry and not exceeding sixteen in any twelve consecutive months.

Special rates to faster steamships, graded according to their speed, to offset the mail subsidies paid by foreign governments, varying from five-tenths of 1 cent a gross ton for vessels of more than 2,000 gross tons, and of twelve knots and less than fourteen knots speed, to 2 $\frac{3}{10}$ cents a gross ton for vessels of more than 10,000 gross tons and twenty-one knots or more speed.

A ten knot ship, with a mileage of 42,000 per annum, would earn $48,300. A fifteen knot ship, with a mileage of 63,000 miles per annum, would earn $141,750. A twenty-one knot ship, with a mileage of 88,200 miles per annum, would earn $304,290.

The bill admits to American registry all foreign steamships owned by Americans on January 1, 1900, and entitles such steamships to half subsidies. Before these foreign built steamships can be registered and receive subsidy, owners must build in the United States corresponding steamships, as in the cases of the New York and Paris.

All vessels receiving subsidy are required to carry the ocean mails of the United States free of charge, and may be impressed as auxiliary cruisers or transports.

The Canadian system of bounties for deep sea fisheries is also included in the bill.

How woefully our shipping interests have been neglected will be ascertained by reading the report of Commissioner of Navigation Chamberlain for the fiscal year ending June 30, 1900, made public last month, and also note that for the first time since the Civil War our tonnage exceeded 5,000,000 gross tons. The report shows that on June 30, 1900, American documented tonnage comprised 23,333 vessels of 5,164,839 gross tons, an increase of 300,000 tons over the previous fiscal year. Our maximum tonnage was 5,539,813 tons in 1861. Our shipping, the report adds, in 1861 was larger than Great Britain's, and nearly equaled the British Empire's. British shipping now amounts to 14,261,000 gross tons.

American vessels are almost wholly confined to the coasting trade, which employed last year 4,338,145 tons, or more than the total tonnage of Germany and France. Our tonnage in the foreign trade was only 816,795 tons, and carried last year only 9 per cent. of our exports and imports. A century ago American shipping registered for foreign trade was 669,921 tons, while this tonnage now in the thirteen original States amounts to 482,907 tons.

The report says that for serious competition with foreign nations in the ocean carrying trade we are practically restricted to 97 registered steamships over 1,000 tons, aggregating 260,325 tons. Single foreign steamship corporations own greater tonnage. Japan has 83 ocean steamships of over 2,000 tons, aggregating 286,000 tons. Besides these steamships we have 125 registered square rigged sail vessels, over 1,000 tons each, for the deep sea trade. More than half of these are over twenty years old, and as such vessels disappear their places are not supplied by new construction.

Our tonnage is distributed between the Atlantic and Gulf coasts, 2,727,892 gross tons; Great Lakes, 1,565,587 tons; Pacific coast, including Hawaii, 612,904 tons; Mississippi and tributary rivers, 258,456 tons.

The increase in our shipping during the decade was 740,342 tons, of which 502,523 tons stand to the credit of the Great Lakes. The increase in ten years on the Pacific has been 184,512 tons, due mainly to Alaskan and Hawaiian trade, and on the Atlantic and Gulf coasts only 89,297 tons, while the tonnage on the Mississippi and tributaries has decreased 36,000 tons.

Since 1890 the world's steamships have increased from 12,985,000 gross tons to 22,369,000 gross tons; sail vessels have decreased from 9,166,000 tons to 6,674,000, and the effective carrying power of the world's merchant fleet has increased 60 per cent.

The export trade of the United States requires about 20 per cent. of the world's seagoing tonnage in foreign trade, including the largest, fastest and most expensive steamships. The weight of our exports by sea in 1899 was 24,000,000 tons, of 2,240 pounds. To carry these exports and passengers, including immigrants, requires steady employment throughout the year of about 1,200 steamships, aggregating 3,600,000 gross tons, and 1,300 sailing vessels of 1,000,000 tons. The number of tonnage of vessels actually engaged is, of course, larger, as many vessels are engaged only part of the year in the trade of the United States.

Comparisons are made with foreign subsidies to fast steamships, which aggregate $20,000,000 annually, and the report holds that the subsidies proposed for similar American steamships are not more than adequate to secure American ocean mail services to the great continents equivalent to those of Great Britain, Germany and France. In the past sixty years Great Britain and her colonies have spent over $240,000,000 for British ocean mail steamships.

On the basis of foreign voyages actually made by American vessels, aggregating 809,000 gross tons, during the calendar year 1899, the report says the expenditures under the Senate subsidy bill would have been $2,907,000. Details and estimates show that, with the additional shipping eligible, the cost during the first year of the bill's operation would be about $4,500,000. The maximum of $9,000,000, it is said, probably would be attained during 1904–5, when a reduction of subsidy rates would be necessary.

It is announced from Washington that Naval Constructor Francis T. Bowles, now at the Brooklyn Navy Yard, is to succeed Rear-Admiral Philip Hichborn, U. S. N., as chief of Construction and Repair, when the latter's term expires.

CHICAGO.

Special Correspondence to The Marine Record.

The barge office at Rush street bridge is undergoing a thorough renovating.

The steamer John Plankinton, light, arrived from South Chicago Monday afternoon.

The schooner Hattie Hutt arrived here Monday morning, Dec. 17th, with a cargo of potatoes.

The steamer John Plankinton was in the Chicago Ship Building Co.'s drydock for bottom calking.

Capt. John Wilson has been transferred to the steamer Atlanta in consequence of the death of Capt. Munger.

The steam barge George Dunbar, Capt. W. Hudson, left here Tuesday afternoon, Dec. 18, for Empire, for lumber.

The steamer Syracuse is in dock at Miller Brothers, receiving one new keel plate a new propeller-blade, and a general overhauling.

The steamer John Mitchell, light, arrived here from Milwaukee Sunday afternoon, and the steamer C. F. Bielman Monday afternoon.

The steamer Niko, Capt. Thomas Bates, with coal from Oswego, arrived here at 4:30 p. m. last Saturday. She left Oswego on the 6th inst.

Asa F. Leopold, the well known marine agent of the Standard Oil Co. at this port, after a successful season's work, is spending a two weeks' vacation at Duluth, visiting old friends.

Capt. Edward Morton, manager of the Wilson Trans. Co., was in this city Monday. He had visited Manitowoc and Milwaukee, and looked after the vessels of the company's fleet gone into winter quarters at those ports.

The Goodrich Transportation Co.'s steamers City of Racine and Georgia, went into winter quarters at Manitowoc on Sunday. The City of Racine is to receive a new upper cabin, similar to the one placed on the company's steamer Indiana.

It is given out that J. H. Graham, president of Graham & Morton Transportation Co., is contemplating moving to Chicago, which city will probably become the headquarters of this boat line that has figured so largely in the growth of Benton Harbor and St. Joseph.

The steamer Edward Buckley, which arrived here on the 11th instant from Manistee with lumber and salt, had made 76 rounds trips since the opening of navigation, and Capt. Greenwich said he had to make one trip to South Chicago and another to Milwaukee before his season's work was completed.

J. B. Bates & Co. are re-calking the steamer Tampa inside and out, giving the steamer John Spry new deck beams and decks, the schooner Cora A. new deck and hatch coamings, the schooner Lotus is having her ceiling and top sides calked, the steamer City of London is receiving new floor and new mainmast.

Capt. Ira B. Mansfield is here in the interest of the Inland Lloyds. He will commence at once inspecting vessels about to load grain for winter storage and will make a general inspection after January 1st, of the fleet in winter quarters here. The captain has his headquarters at the office of the Etna Insurance Co., 145 La Salle street.

The report of Capt. J. G. Warren, Corps of Engineers, U. S. A., relative to the Milwaukee outer harbor scheme, which was made at the request of Congress last spring, has just been made public. The report states that the improvement suggested is not advisable. The report has the indorsement of Col. J. W. Barlow of the engineer corps, of Brigadier General John M. Wilson, chief of engineers, and Secretary of War Elihu Root, which are printed with the report, something unusual in connection with documeuts of this character. The report states that neither the present nor the future commerce of Milwaukee demands the construction of the outer harbor, as proposed, but in no way reflects upon the business of the port, but on the contrary contains a splended tribute to the facilities already offered here. It also describes the inner harbor, stating that the largest lake carriers have no difficulty in gaining an entrance.

Within a few days charters have been made here for 500,000 bushels of oats, winter storage and spring delivery. No charters for corn have thus far been made, nor is it likely that any will be for some time. The elevators there contain at present 2,426,000 bushels, and of this less than 1,000,000 bushels is said to be of contract grade. Fully nine-tenths of the corn being received is too green to be placed on board of vessels. Concerning the oats placed under charter one of the Chicago dailies says: "For years it has been a comparatively safe trade to buy oats and load them into vessels in the winter and sell futures against them. Some of the vesselmen do this on their own account every year. The total amount of grain stored in Chicago public and private elevators at the close of last week, was 26,489,000 bushels, as follows: Wheat, 17,304,000 bushels; corn, 2,426,000 bushels; oats, 5,768,000 bushels; rye, 643,000 bushels; barley, 348,000 bushels.

Capt. Joseph Munger, master of the Goodrich Trans. Co.'s steamer Atlanta, died suddenly at 3:15 Friday afternoon, Dec. 14th, while walking on Commercial street, Manitowoc, he was stricken with heart failure and died before medical aid could be rendered him. The body was removed to his home on North Fifth street. Capt. Munger's health had been failing for some time, although no immediate danger was anticipated. He arrived at Manitowoc Wednesday, in command of the steamer Atlanta, and was to have taken her out Friday night. During the season of navigation he had been running to the East shore from Chicago, and this was his first trip home for several months. Deceased was about 50 years of age and had been a resident of Manitowoc for a number of years, and was much respected. He leaves a widow and two daughters to deplore the loss of one of the kindest and best of husbands and fathers. The funeral took place at Manitowoc, Monday afternoon, and was largely attended by the Goodrich Trans. Co.'s officials and employees and friends of the deceased.

The proposed extensive improvements of Muskegon harbor at a total cost of $280,000, recommended to Congress by Captain Harding, in charge of the engineer's office at Grand Rapids, Mich., and endorsed by Secretary of War and many other officers in the engineering corps, is looked upon as an assured thing by the Muskegon people, who have been pushing the project for years. The changes it is proposed to make are vast in their scope, as it practically is the intention to construct a new harbor, making Muskegon not only a port but a harbor of refuge as well. The present harbor is funnel-shaped, being 500 feet wide at its entrance and narrowing to 185 in the channel proper. It is proposed to draw the line from the end of this diverging pier straight inland and to make the entire channel from Lake Michigan to Muskegon Lake 300 feet wide, or nearly twice its present width. The new channel will pass directly over the spot where the United States life-saving station now stands, and it will be necessary to move that building some distance. Since the station was built a quarter of a century ago some 600 or 700 feet of sand has filled in between it and the big lake. The station opens on the channel, but it is a long pull to Lake Michigan after a boat has been launched. It is likely the station will be moved 500 feet backward when the change is made. The Pere Marquette Railroad Company owns all the contiguous territory and has expressed a willingness to cede any land that may be needed for the proposed improvement. The plans are now in the hands of the Committee on Rivers and Harbors of the National House of Representatives, of which Colonel Roswell P. Bishop, Congressman from the Ninth district, is the power and the passage of the appropriation is confidently expected,

DETROIT.

Special Correspondence to the Marine Record.

U. S. Steamboat Inspectors Millen and Galway are arranging to conduct an investigation to fix the responsibility for the sinking of the barge Martha in Lake St. Clair last fall. Masters of the steamers E. P. Wilbur and Troy have been notified to appear before the inspectors in January next.

Contractor McMorran has abandoned the Myrtle Ross to the winds and ice of Lake St. Clair. The Ross, which took a dive in the lake and tried to sink her crew, has settled down in about five feet of soft mud, and when contractor McMorran tried to raise her with chains and pontoons, he found that his $800 contract was a loser. In the sea which was running last Friday, two of the pontoons were overturned, their "masts" were pulled out and the three chains already attached were lost. Six hydraulic jacks, which cost about $200 each, slid into the water, and by spring will have settled far into the mud. The work was abandoned until spring, and it is probable that the hull of the Ross will be well cut up before the wreckers can reach her then.

Engineer George Y. Wisner, whose experience as a member of the deep waterways commission equips him with special engineering knowledge, does not believe that the New York legislature will find a barge canal in favor in that state. "The proposed enlargement of the Erie canal to accommodate steam barges has many impracticable features," said Mr. Wisner. "In the first place, the proposed enlargement, providing for but twelve feet of water, would not allow more than a ten foot draft—a draft entirely impracticable in lake navigation because of the danger of storms and the fact that they would carry too little to make them profitable. The enlargement of the Erie canal means a continuation of the present methods of transferring loads at Buffalo, and the making of through bills of lading from Chicago or Duluth would demand that lake lines have separate barge lines on the canal. I maintain that there is no use in spending money on such a project unless enough money is expended to give a regular twenty-one-foot channel through to the sea. This would mean less delay, enable the vesselmen to bill through, and do away with the expense of transferring from steamer to barges, and the attendant loss to cargo. The state department of New York has made a complete survey of the route, using both the routes surveyed by us and others which we did not consider, and the engineers of the New York commission will report to the legislature next month. That report will be interesting to vesselmen on the lakes."

BUFFALO.

Special Correspondence to the Marine Record.

The Ontario fisheries department officials have seized the tug Crawford, operating in Lake Erie, near port Burwell, in Canadian waters, without a license. The Crawford is believed to belong to the Empire Fish Co. of Buffalo. She had on board several hundred pounds of herring.

Considerable interest is manifested in marine circles over the case in admiralty, before Judge Hazel, at this port, between the Bessemer and the Northern steamship lines. The case is the outcome of a collision between the steamers North Star and the Siemens in the Soo river last season.

Surgeon Wasdin, in charge of the United States Marine Hospital is urging representatives Ryan and Alexander to secure from Congress at this session the appropriation of $125.000 for the establishment of a new marine hospital at Buffalo. Dr. Wasdin is supported in this matter by the Buffalo Merchants' Exchange and other commercial organizations besides the local marine fraternity.

Basing the figures on the length of the modern grain car, which is 34 feet, it would take a train at least 376 miles long to carry all the corn that has been brought to Buffalo this season by lake. In a train of that length the space of about 2½ feet between each car is not included, 155 34 foot cars making all but 10 feet of a mile. In such a train there would be about 58,280 cars. On the same basis a train 277 miles long would be required to carry all the wheat that has been shipped to Buffalo by lake this season. It would include 42,935, cars. A train 106 miles long or of 16,430 cars would be needed to transport the oats received at this port during 1899. But the immense receipts of the season now closing, while they are slightly above those of 1899, are far below those of 1898, which was the banner year in the history of Buffalo's lake commerce. In that year was made a record that probably never again will be equaled, and should Buffalo's grain trade diminish from now on, it will not be due so much to the Canadian routes as to the railways, which doubtless are responsible in some measure for cutting down the lake receipts this year and last.

After a season of competition for tows in this harbor and at other ports along the lakes, the Great Lakes Towing Company, known as the tug trust, has brought suit against the Maytham Towing and Wrecking Company, and prays the court to restrain the latter company from engaging in business until Sept. 1, 1904. Eminent counsel has been engaged and the fight in the courts promises to be as bitter as the struggle between the rival lines for business during the season just closed. The summons and complaint in the action were served on most of the defendants. The plaintiffs are represented by the law firm of Rogers, Locke & Milburn, with John G. Milburn, James H. Hoyt and Harvey D. Goulder as counsel. The outcome of the suit will be watched with great interest. The tug trust alleges that the Maythams and others, who sold out to the trust in 1899, agreed not to engage in the towing and wrecking business for a period of five years, except in Lake Ontario and the waters east of that lake. It is claimed that this agreement has been violated and that the defendants have not only engaged in business, but have cut rates from 25 to 30 per cent. to secure business. Further, it is claimed that the Maythams have worked loss and damage to the Great Lakes Towing Company by these cut rates; that they have offered to sell out to the trust the second time; that they are preparing to make alliances with other outside owners if the trust does not purchase their present plant, and that they are soliciting business and will work still greater damage to the trust if not restrained by the court. The defendants have until Dec. 30 to prepare their answer to the complaint, which was dated Dec. 10. Many of the details of the organization of both companies and their charter under the laws of New Jersey are told in the complaint. Prior to Aug. 1, 1899, the Maytham Tug Company had been doing a general towing and wrecking business for many years. Its rival in this port was the Hand & Johnson Tug Line, and their offices were side by side at the foot of Main street, as are the offices of the trust and the Maytham company today. Both concerns were bought by the trust on Aug. 1, 1899, after several weeks of negotiation. The trust now claims that both companies represented their good will to be extremely valuable, and that money "in excess of $50,000" was paid for the property, business and good will of each, and that both signed the agreement not to engage in the business for a period of five years from Sept. 1, 1899. The complaint alleges that since that time the Maytham Towing and Wrecking Company has been organized in violation of that agreement, and that the stockholders in the new company are the same people who sold out to the trust. Specific complaint is made of a circular, signed by Charles Maytham, manager, which says: "We have succeeded in securing the best talent possible to operate our tugs, and the masters who have been assigned to the tugs are men who have been in the Maytham employ for the last 20 or 30 years, and we are therefore confident of their ability. These men have left the trust voluntarily and have flocked to our service again, and the fact that we have these men will enable us to do our work at a much lower figure than the trust could hope to do with the new men they will be obliged to secure; * * * and * * * at Buffalo our headquarters will be at the old Maytham stand after May 1." The circular says the company has tugs at Duluth, Buffalo, Ashtabula, Tonawanda, Sault Ste. Marie, and that it contemplates putting tugs in service at Chicago to be managed by Barry Brothers, and that Erie, Escanaba and Conneaut may be added to the operations of the Maytham company. The allegation of

the complaint that the Maythams are trying to sell out again to the trust is as follows: "The plaintiff further alleges that the said defendants, by reason of said acts, representatives, circulars and deeds, and all of them, and in gross violation of the terms of said contracts, are attempting, and have attempted, to induce and compel this plaintiff to purchase certain tugs, wrongfully acquired by said defendants since the sale to this plaintiff as aforesaid, and that the said G. W. Maytham, for himself and as representing the other defendants, has offered in writing to sell to this plaintiff certain tugs wrongfully acquired by them since said sale and the execution of said contract for a large sum of money, and has stated to the representative of this plaintiff that, if this plaintiff will purchase said tugs so wrongfully acquired by them and pay the large sum of money referred to, they will again agree to go out of the towing and wrecking business on the Great Lakes and waters tributary thereto."

DULUTH—SUPERIOR.

Special Correspondence to The Marine Record.

The people of Houghton, Hancock and Marquette are petioning the Northern Steamship Co., to arrange next season to have its boats to make those points.

Secretary Spaulding has reduced the fine of $200 imposed on the steamer W. H. Gilbert for violating navigation laws. The penalty imposed by the secretary's order was a fine of $20.

The firm of Nye, Jenks & Co., operating the 1,250,000 bushel elevator at Duluth and smaller houses at Washburn and Milwaukee, is to build a 1,000,000 bushel house at Chicago. The Chicago company is called the Rialto Elevator Co., and the structure will be of steel and cement and fireproof. It will cost over $400,000.

Among the improvements to be made on the coal docks at the head of the lakes this winter may be mentioned those planned for the St. Paul & Western and the Boston Coal Dock & Wharf Co. Additions are to be made to the hoists and the construction of a lot of trackage, which will greatly facilitate the handling of coal and cause less delay.

At the annual meeting of Duluth lodge of the Licensed Tugmen's Protective Association the following officers and delegates were elected: President, E. Brown; vice president, James Walsh; second vice president, Art Green; recording secretary, George E. Milliken; financial secretary, R. F. Burrows; corresponding secretary, George E. Milliken; treasurer, A. H. Kent; trustees, H. Ditzel, A. Harvey, J. W. Hillier, Eli Jacques, Sr.; delegates to the grand lodge, C. H. Green and James Bishop.

During the season just closing the best record was made. in the ore trade. While the movement was not as heavy as predicted during the early part of the season, a good increase over last year is shown. The general opinion during the boom days of last winter was that the 20,000,000 ton mark would be reached, but the shipments for the season are nearly 1,500,000 tons below that figure. The season opened about three weeks earlier than last year, but during the latter part of the season the movement was not as heavy as it was in 1899. Shipments from all ports for 1900 were 18,570,310 tons compared with 17,901,196 tons in 1899. The increase over 1899 is 669,114 tons. The all-rail movement will bring the total for 1900 pretty close to 20,000,000 tons. Shipments from November 1 up to the close were 1;282,358 tons against 2,306,898 tons for the same time last year, a falling off of 1,024,540 tons. Duluth led all the other ports up to November 1, but during November and December Two Harbors went to the front and leads with 4,007,294 tons. More ore was sent forward from Two Harbors during December than any other port, and most of it was carried by boats of the Minnesota fleet. Duluth is second in shipments, with Escanaba third.

The amount of unsold lumber on the docks at the head of the lakes December 1, was 126,672,000 feet, as compared with 37,473,000 feet in 1899 on the same date, 72,751,000 feet in 1898, and 108,995,000 feet in 1897. A number of the lumber shippers have just issued their stock books for the information of their customers. The unsold lumber is divided as follows: No. 2 and better, 37,013,000 feet; No. 3 and better, 8,342,000 feet; Norway, 5,933,000 feet; shorts, 5,735,000 feet; No. 3 boards, 25,708,000 feet; No. 4 boards, 22,301,000 feet; scoots, 20,875,000 feet; and cull crosses, 765,000 feet. There was a total of 168,000,000 feet, sold and unsold in dock December 1. Several million feet of lumber have been sold since December 1, but the stock sheets are made up from that date, which is a convenient one from which to reckon, as the season of navigation closes about that time, and the mills, as a rule, shut down for the season. It is expected that all lumber carried over the winter on the Duluth-Superior harbor will have been sold by May 1, at the opening of navigation, and about the time the sawmills begin operating for the season. While there was about three and one-half times as much lumber for sale on December 1 this year as a year ago, there are only 16,000,000 feet more of No. 2 common and better, than a year ago. The large increase is in No. 4 and No. 5 boards. The average vessel lumber rate this season was $2.25, as compared with $3.08 in 1899, $1.78 in 1898, and $1.58 in 1897. The last cargo left Duluth December 3 this year, and on November 28 last year. December 3 was the date of the last lumber cargo departure from Duluth in 1898 and 1897.

CLEVELAND.

Special Correspondence to The Marine Record.

The steamer Manola and schooner Manda, of the Minnesota fleet, will hold ore cargoes at Two Harbors during the winter.

The Shipmasters' Association will hold their annual reception and ball at the Chamber of Commerce, Friday evening, Jan 25.

An important meeting of the Marine Engineer's Benevolent Association will be held in their rooms, No. 122 Water street, on Saturday night.

There is plenty of repair work in sight, and the local drydocks will be busy all winter. Repairs on the schooner Martha will be the biggest job.

The Secretary of the Treasury has transmitted to Congress a communication from General Superintendent Kimball, of the Life-Saving Service, recommending an amendment to the book of estimates for 1901, appropriating sufficient money for the pay of surfmen, and for apparatus to properly illustrate at the Pan-American exposition, the methods employed in saving life.

The Shipmasters' Association out of their Morris charitable fund have contributed to the relief of the Hawkins family by putting the money into the hands of Chaplain J. D. Jones, of the Floating Bethel, who has purchased six pairs of new shoes, a ton of coal, paid their rent, provided groceries and fifty garments, and will continue to look after their needs, providing all do right and the mother and older children do what they can towards supporting the younger children. The drowned sailor left a widow and seven children in absolute poverty. When the chaplain first went to their sorrowful home, the coal house was empty, the cupboard bare, and some of the children without shoes or stockings, and nearly naked, the landlord had served notice for them to move out, as they were behind in their rent. Judgment and experience is needed in caring for this case.

Lake freights that have ruled during the past season are very much below the basis of $1.25 on which contracts for the movement of iron ore from the head of Lake Superior were made last winter, nevertheless, the averages of daily rates for 1900 are higher than they were in 1896, 1897, or 1898. The principal items are: Iron ore from Escanaba to Ohio ports, 69.5 cents; from Marquette, 78.3 cents; from head of Lake Superior, 84.5 cents; wheat from Chicago to Buffalo, 1.8 cents; wheat from Duluth to Buffalo, 2 cents; soft coal from Ohio ports to Duluth, 40.2 cents; soft coal from Ohio ports to Milwaukee, 45.4 cents. This year the averages of daily rates, especially as regards iron ore, are not of as much importance as in previous years, on account of the very large proportion of the different commodities that was moved on season contracts. Of the total movement of ore, probably 85 per cent. was on the contract basis of $1.25 from the head of Lake Superior. Soft coal going to the head of Lake Superior was also covered largely by 50 cent contracts, probably to the extent of 1,750,000 tons.

The American Ship Building Co. now has thirty large vessels under contract to come out next season. General Manager J. C. Wallace has just closed a contract with Frank H. Peavey, the well known elevator capitalist at the head of Lake Superior, for four large steel steamers for delivery in 1901. The steamers will be 450 feet over all, 430 feet keel, 50 feet beam and 28½ deep. They will have quadruple-expansion engines and steam will be furnished by water tube boilers. Two of the boats will come out next September, and the other two will be ready the following month. The four steamers will cost $1,500,000. They will be worked between Duluth and Lake Erie ports, in the grain and ore trade. Mr. Wallace said that he had not decided at which of the company's yards the steamers would be built, but that question will be settled in a few days. Work on the boats will be started as soon as possible, as with all the other work on hand the shipbuilding company will have to hustle to get the boats out on time. The season just about to close was the banner year in the shipbuilding business. More vessels were ordered than ever before in the history of the lake shipbuilding trade.

The campaign recently entered upon by Chicago to promote a deep waterway from the Lakes to the Gulf is fraught with possibilities almost beyond conception in the way of commercial development. The proposition is to turn over the great drainage canal, which cost about $35,000,000 to the government, in return for which the latter is to undertake the leveeing and maintaining of a fixed channel for the entire distance from Lake Michigan to the Gulf of Mexico. The cost to the government is estimated at about $100,000,000. The whole valley and especially the Southern portion will co-operate with Chicago in this magnificent project.—The Lumber Trade Journal.

The Rescue Life-Boat Co. has been organized at Muskegon, Mich., to construct life-boats under the patents of Capt. R. D. Mayo. The boat is described as follows: It consists of a metallic cylinder 30 feet long, with rounded ends. The diameter at the middle is 6½ feet. The seats are so arranged that no matter how the boat pitches and rolls they are always at the bottom. Air is provided for the occupants by a pipe. The life boats will lie on the deck of a vessel and when an accident occurs the passengers and crew enter through a man-hole, which is closed from the inside. If the ship sinks the life boat remains on the surface. A boat to accommodate 50 persons will cost $600.

AVERAGE DAILY RATES OF FREIGHT ON THE LAKES

	1900, Cents.	1899, Cents.	1900, Cents.
Iron ore, Escanaba to Ohio ports, gross ton	69 5	94.8	50.8
Iron ore, head of Lake Superior to Ohio ports, gross ton	84.5	129.5	61.0
Iron ore, Marquette to Ohio ports, gross ton	78.3	108.5	59.8
Wheat, Chicago to Buffalo, bushel	1.8	2.7	1.5
Wheat, Duluth to Buffalo, bushel	2.0	3.6	1.8
Soft coal, Ohio ports to Milwaukee, net ton	45.4	69.9	27.8
Soft coal, Ohio ports to Duluth, net ton	40.2	45.4	23.4
Soft coal, Ohio ports to Portage, net ton	41.3	56.4	29.7
Soft coal, Ohio ports to Manitowoc, net ton	43.6	67.0	28 5
Soft coal, Ohio ports to Sheboygan, net ton	43.6	66.5	27.8
Soft coal, Ohio ports to Green Bay net ton	45.0	66.5	28.5
Soft coal, Ohio ports to Escanaba, net ton	40.0	58.2	26.4
Hard coal, Buffalo to Milwaukee, net ton	48.5	72.7	28.0
Hard coal, Buffalo to Chicago, net ton	48.5	72.7	28.0
Hard coal, Buffalo to Duluth, net ton	39.5	49.5	23 0
Lumber, head of lakes to Ohio ports	233.7		

Average daily freight rates during ten years ending with 1000.

	Cents.
Iron ore, head of Lake Superior to Ohio ports, gross ton	90
Iron ore, Marquette to Ohio ports, gross ton	79
Iron ore, Escanaba to Ohio ports, gross ton	64½
Soft coal, Ohio ports to Milwaukee, net ton	47
Soft coal, Ohio ports to Duluth, net ton	37
Hard coal, Buffalo to Chicago, net ton	48
Hard coal, Buffalo to Duluth, net ton	31
Wheat Chicago to Buffalo, bushel	1.87

LETTERS AT DETROIT MARINE POST OFFICE.

December 19, 1900.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Anderson Chas., Quayle
Anderson Sam, Mead
Autterson Chas., Niagara
Albrecht Henry, Merette
Anderson Capt., Magee
Alger M. S., Masaba
Abair Eddie, Genoa
Ackley Jno. P., Fletcher
Ames Frank, Holen
Albinson Clarence, Bessemer
Allen Wallace, Woolson
Andres Edw., Waldo
Allen John L., Darley
Abbot P. E., Continental
Allen Harry, Castalia
Allen W. W., Russia
Abel Frank, Ralph
Anderson John, Lockwood
Brackmiller Fred, Maxwell
Brunell Henry, 2, Normandie
Brown F. B., Nimick
Bell A. L., 2, Nicol
Bennett Jas., 2, Kaliyuga
Bennett Eddie, Joliet
Benz Geo. W., Lewiston
Baye H. J., Lewiston
Burns Chas., Lindsay
Baldwin Frank, Princeton
Bedell Cora, Pennington
Burgess Ross, Peck
Brown C. M., Peck
Babcock L. E., Preque Isle
Bard John, Reginald
Behm E. L., W. C. Rhodes
Burgess Riley, Pabst
Barbeau Ed.
Plain T. J., Choctah
Butler Archie
Burkley Frank, 3
Beynon R. B., Republic
Barrett Arthur, Houghton
Baker Alfred, Lang Bois
Brown Bernard, Iron King
Bremer May, Sheldon
Billinghurst Jno., Rhodes
Bresnahan Jas., Warnington
Bretell Jos., Wilhelm
Biddlecomb Frank, City of Genoa
Beaudoin Bap, 2, Stone
Baker Geo., Hayward
Bostwick Murray, V. H. Ketchum
Brock Mrs. M., Oscoda
Bentley Frank, Jas. Owen
Bodjack Jos., Prentice
Buntney Geo., Superior City
Barnes C. E, 2, Seattle
Barley John E., W. D. Reese
Betts Thos. E., R. Stewart
Becker Otto, Coralia
Buchanan Walter, Corona
Boyd John, Cormorant
Boyce A. A., 2, Crescent City
Barry J. C., Denver
Beckwith G. W., Denver
Bowen W. H., Vulcan
Beard B., Wallulla
Boelmer Chas., Wallace
Bernhad Frank, Wawatam
Beebe Ed., Whitney
Bunce Geo. M., Zillah
Beatty Arthur, Alva
Benson Dan, C. C. Barnes
Brown I. A., Armour
Bendixen T. B. L., Carnegie
Burke Chas., Crescent City
Bennet Chas., Hopkins
Blair J. W., Huron City
Butter James, J. E. Hall
Brown W. J., 3, Ford
Bergeron Noal, Ferguson
Banker Geo., Gates
Bartholomew Geo., Gilchrist
Beck Fred., Gould
Bellgard Jos., Gould
Barney Horace, Gould
Bertrand C. L., Maricopa
Bailey W. J., McGee
Curran D. A., 2, Colin Campbell
Cartwright Peter, 3, Curry
Cornwall John, Danforth
Cahill W. J., Wetmore
Crow F. J., Wilhelm
Cooper Thos., 2, Wade
Campbell D. H., Williams
Calvin Chas., Zillah
Craig J. B., Advance
Cassidy Jos., 2, Averill
Carlson M. P., Algeria
Crawford D., Black

F. B. DICKERSON, P. M.

(To be concluded next week).

THE VARIATION OF THE COMPASS.

BY G. W. LITTLEHALES, HYDROGRAPHIC ENGINEER.

In seeking the truth concerning the pointing of the compass needle, upon which trans-oceanic navigation has rested throughout the history of the world, first cast aside the old and familiar saying, "True as the needle to the pole," for it only holds good within a few shiftiug areas whose combined extent does not amount to 1 per cent. of the area of the globe. There are portions of the earth's surface where the compass needle points due east and west, and still others where the north end actually points south. In the Atlantic the average departure of the direction of the compass needle from the direction of the pole star is 20° west of north, while in the Pacific it is 10° east of north. At the entrance to Hudson Bay the compass points 55° west, and in the West Indies 5° east of the true meridian; hence, in a voyage along the eastern coast of the American continent, from Hudson Bay to the mouth of the Mississippi river, a change of 60° is experienced in the direction of the compass needle, and similarly in a trans-Pacific voyage, from Juan de Fuca to Yokohama, a change of 27° is experienced. And over so comparatively small a stretch of sea as lies between Newfoundland and New York the pointing of the compass needle varies 25°. We are thus made acquainted with the variation of the compass which may be strictly defined as the angle between the true north and south line and the magnetic north and south line as pointed out by a compass needle or other magnetized needle so mounted as to swing freely about a vertical axis or pivot.

For more than a century it has been customary among chart makers to represent the change in the variation of the compass from place to place by lines conceived to be drawn upon the surface of the globe and passing through all places where there is the same difference between the direction of the true north and the direction of the needle. These are called lines of equal variation of the compass. They issue from one magnetic pole and pass by curved paths to the other and through the geographical poles of the earth, but since the earth's magnetism, which is the cause of the variation of the compass, is not fixed, either as to time or locality, they shift their positions hourly, daily, monthly, yearly, and through centuries. These changes are all believed to be periodic, and, with the exception of the last mentioned, which is generally called the secular change because it goes on and on throughout centuries, are of such small extent that they do not affect the use of the compass on the seas where commerce is carried on. So that for purposes of navigation the lines of equal magnetic variation may be drawn so as to hold good for several years from a given time.

It was several centuries after the introduction of the compass into Europe before this difference in direction between the magnetic meridian and the true meridian was discovered, and the discoverer was no less a person than Christopher Columbus. The history of his first voyage of discovery tells us of the consternation that was caused on board ship when it was observed that the compass had shifted its direction from east of north to west of north. Columbus had, in fact, crossed the line on September 13, 1492, along which the needle pointed true north—that is, the line of no variation of the compass. To the east of this line the needle pointed east, and to the west the needle bore west. In those days the line passed a little to the west of Fayal in the Azores and figured quite prominently for many years in political geography as the boundary between the kingdoms of Portugal and Castile.

Before the middle of the sixteenth century it was thought that the needle's misdirection from the true north was due to mechanical imperfections, and the compasses of this period were frequently corrected so that they would point true; but when the fact of the variation of the compass came to be generally accepted, the necessity that mariners should take account of it in the navigation of their ships at once became apparent, and observation s began to multiply in all those seas with which navigators were then acquainted. At the beginning of the eighteenth century sufficient information had accumulated in England to warrant Edmund Halley to publish a world chart showing the lines of equal variation of the compass for the year 1700 in all seas excepting the Pacific ocean. In describing his chart the author wrote:

"What is here properly new, is the curve lines drawn over the several seas, to show the degrees of the variation of the magnetical needle, or sea-compass; which are designed according to what I myself found, in the western and southern oceans, in a voyage I purposely made at the public charge, in the year of our Lord 1700; or have collected from the comparison of several journals of voyages lately made in the Indian Seas, adapted to the same year.

"That this may be better understood, the curious mariner is desired to observe, that in this chart the double line passing near Bermudas, the Cape de Verde Islands, and St. Helena, everywhere divides the east and west variation in this ocean and that on the whole coast of Europe and Africa the variation is westerly, as on the more northerly coast of America, but on the more southerly parts of America 'tis easterly. The degrees of variation, of how much the compass declines from the true north on either side, is reckoned by the number of the lines on each side of the double curve, which I call the line of no variation; and each fifth and tenth is distinguished in its stroke, and numbered accordingly. So that in what place soever your ship is, you find the variation by inspection. The like is to be observed in the Indian Ocean, where the variation is altogether westerly, increasing until you come about the meridian of the eastern part of St. Lawrence or Madagascar (where it is about two points) and thence it decreases till you arrive on the eastern coast of China, or at the Philippine Isles. Here another double line on which there is no variation, divides again the west from the east variation, that in all probability is to be met with almost all over that immense ocean we commonly call the South sea, but I have not attempted to describ the curves therein, wanting accounts and journals to ascertain the same.

"As to the uses of this chart, they will be easily understood, especially by such as are acquainted with the azimuth compass, to be to correct the courses of ships at sea. For if the variation of the compass be not allowed, all reckonings must be so far erroneous: And in continued cloudy weather where the mariner is not provided to observe this variation duly, the chart will readily show him what allowances he must make for the default of his compass, and thereby rectify his Journal."

So that here was a chart, made nearly two centuries ago, which indicated the amount of the variation of the compass to the east or to the west to the true north in every locality in the Atlantic and Indian oceans. This chart would hold good to-day if it were not for the fact that the variation not only differs in different localities, but also suffers a perpetual, though slow, change in its amount at any particular locality. In 1634 Henry Gellibrand, of London, eatablished the fact of the secular change or variation in the variation of the compass and announced his conclusion as follows: "Hitherto, according to the tenets of our magnetic philosophers, we have supposed the variation of all particular places to continue one and the same.* * * But most diligent magnetical observations have plainly offered violence to the same, and proved the contrary, namely, that the variation is accompanied with a variation." From this time reliable observations were recorded for the great populous centers of Europe, and soon observations of the variation of the compass had been made by navigators in most of the known parts of the world, although the older observations, having been made without the means of precise measurement, are subject to a probable error of as much as 1°, they can be accepted as serviceable in the discussion of a long series, and serve to reveal satisfactorily the secular change of the variation of the compass. Through the results of the observations of navigators of successive generations, series of observations of the variation extending over two or three centuries are available for most of the important maritime stations of the world. On plotting the observations at a given station with reference to rectangular coordinates, using values of the variation of the compass as ordinates and intervals of time as abscissas, sinnous curves are developed which suggest the periodic character of the secular change. By the study of such curves the rate of movement of the compass needle is found for any time within the range of the observations, the times when the needle is stationary are determined, and the values of the variation of the compass are predicted for ten or fifteen years beyond the limits of the series of observations. But the observations which have been taken at any particular place up to the present time are manifestly insufficient to warrant a conclusion that after a certain period has elapsed the variation of the compass will be the same there as it is now and will then repeat its changes and again assume the same value after the lapse of the same interval of time. So that the natural law which regulates the secular change is not yet known, and, in the absence of complete knowledge of this law, predicted values can not be relied upon beyond the term of years that has been mentioned.

It is, therefore, at once clear that the closeness to the truth with which the variation of the compass may be represented by lines of equal magnetic variation, such as are shown on the Pilot Chart of the North Atlantic Ocean and the Pilot Chart of the North Pacific Ocean, must depend upon the remoteness of the period when the observations for the variation of the compass were taken. As far as the open ocean is concerned, but few reliable observations for the variation have been taken since the epoch when navigation in iron built vessels became general. So that the variation charts of the present time show very nearly the same lines of equal variation of the compass as would have resulted if a chart maker in the days of wood built ships had predicted the changes that would occur between that period and the year 1900 in the values of the variation of the compass in different parts of the oceans of the globe, and, applying them to the variation lines of that period, had brought out a chart for the present time. Such a chart of variation lines would have had involved in it uncertainties to the extent of a degree or two, due to predicting values beyond the limit of time during which predictions can be safely made in the present state of our knowledge, and this is precisely the amount of uncertainty which exists in the variation charts of the present time, for they have been brought forward from the time when observations for the variation of the compass were made in wood built ships, and with but few advantages over what a chart maker of that period could have employed in carrying the lines forward into their positions for the present time. This uncertainty of a degree or two in the values of the variation of the compass, as indicated by the variation lines on ocean charts, must not be forgotten in laying down magnetic courses, nor must the gradual change in the variation escape attention in laying down positions by bearings on charts. The magnetic compass diagrams placed on charts for the purpose of making plotting easier become in time slightly in error, and in some cases, such as with small scales, or when the lines are long, the error in the plotted position from neglect of this change may be of importance. The chart of the North Atlantic Ocean shows the yearly rates of the secular change of the variation of the compass in the localities where the numbers in red are placed. They express, in minutes and decimals of a minute, the angular change in the direction of the compass needle that takes place in one year, and when marked plus (+) indicate that the movement of the north end of the needle is to the westward, and when (—) that it is to the eastward. The region where the compass needle is stationary is indicated by the shaded band. In the Atlantic, to the eastward of this band, the westerly variation is decreasing, and to the westward the westerly variation is increasing (or the easterly variation decreasing as the case may be). Since the beginning of the present century this sinuous band, marking out the region of no yearly change in the variation of the compass, has been moving slowly across the Atlantic like the crest of a huge wave. In 1880 it passed over London and Paris; in 1852 over the Azores; in 1875 over Newfoundland and in 1895 over Halifax and the region to the southeast as shown on the chart. It will pass over the positions of Washington City, Bermuda, and the Cape Verde Islands about 1939 and will probably reach Havanna, the Windward Islands and eastern extremety of South America before the close of the twentieth century. At all points along its western edge the needle has reached its most westerly direction and after a short stationary period will commence a backward movement to the eastward—slowly at first, but gradually increasing for nearly a century and then gradually decreasing until the next wave of no yearly change shall have overtaken their positions.

CONSUL GREENE reports from Antofagasta, August 17, 1900: The Pacific Steam Navigation Co., a British firm, and the South American, a Chilean company, are contemplating an extension of their lines from Central America to San Francisco. This service, now being rendered by the Kosmos steamers, appears to be a success. The boats leave Valparaiso, call at the principal coast ports to Guayaquil, and go thence to Central American and North Pacific ports, not calling at Panama. They take and drop cargo on the trip north and generally return with full loads south. Formerly, Chilean wheat and flour had the coast trade as far as Guayaquil, but the Kosmos steamships, with their reasonable rates, now bring considerable lots, not only for coast supply, but for Bolivia, via Mollendo and this port. This last traffic has been favored by the suspension of Chilean railway service, owing to damage during the winter.

A DIFFERENCE OF OPINION.

Mr. Scherzer, Chicago, advocates the improvement of the Columbia and Missouri rivers, so as to make them connecting links between the lakes and the Pacific Ocean. He attacks the isthmian canal project on the ground that foreign nations would be benefitted thereby more than the United States. Mr. Scherzer says it is deplorable that we should be outstripped by other nations, and gives the following solution:

"The only and most rapid solution for the United States is to construct an adequate ship canal from the Great Lakes to the Atlantic ocean or the Gulf of Mexico, wholly within the United States. Then the present large vessels and fleets on the Great Lakes, now idle during the winter, will immediately and prosperously transport our foreign commerce."

As the "father of the barge-canal project," Major Thomas W. Symons, U. S. A. Corps of Engineers, stationed at Buffalo, was asked by a Commercial reporter whether he had seen Mr. Scherzer's "plea."

"Yes," answered Major Symons, "I have seen Mr. Scherzer's paper; in fact, the author or some one else did me the honor to send me a copy, and I have seen it also in some newspapers. The paper shows that a man may take up one line of work in this life and achieve eminent success, and then make himself utterly ridiculous in the consideration of another subject.

"There have been canal enthusiasts before, but I think that Mr. Scherzer reaches the climax, and his equal in putting forth ridiculous propositions and ignoring facts and figures will probably not appear for many a day.

"Mr. Scherzer is against building the Nicaragua or Panama canals probably because they do not reach Chicago, but he is in favor of ship canals and water routes of the largest size leading from Chicago eastward to the Atlantic, southward to the gulf, and westward to the Pacific, and some of his statements about the cost of these canals are so at variance with ascertained facts as to be almost humorous in their absurdity. He says: 'To complete the drainage and ship canal, improving the Illinois and Mississippi rivers so as to receive either the largest lake or ocean vessels, and form a connecting link between the Great Lakes and the Gulf of Mexico, will cost the United States but a small part of the cost of either of the above canals (Nicaragua or Panama), and the cost of maintenance would be trifling with the cost of maintaining and defending either the Nicaragua or Panama canal. The difference in the cost of a waterway from the Great Lakes to the Gulf of Mexico and the cost of constructing, maintaining and defending either the Nicaragua or Panama canals would leave a sum of money sufficient to construct equally large ship canals connecting the Great Lakes with the Hudson river and the Atlantic ocean, wholly within the United States.'

"The report of the Isthmian Canal Commission shows that it will cost about $200,000,000 to build the Nicaragua canal. The report of the Deep Waterways Commission shows that it will cost about the same amount, $200,000,000, to build a ship canal from the lakes to New York City, for lake vessels, and over $300,000,000 for a canal large enough for ocean vessels. My arithmetic does not enable me to see exactly where the Chicago-Mississippi canal would come in under these figures. I do not know what this latter canal would cost, but it would probably be as much as either of the others named.

"But the crowning absurdity of Mr. Scherzer's paper is the following: 'The improvement of the Columbia river, the Missouri river and the Mississippi river, and the construction of a connecting ship canal between the Columbia and Missouri rivers adequate for the largest naval or merchant vessels, would be of far greater value to the United States than either the Nicaragua or Panama canal, or any other canal in a foreign country, and its cost of construction would probably be less than the cost of construction, maintenance and defense of either the Nicaragua or Panama canals.'

"It has been my lot in life to spend about ten years in the northwest Pacific states, and I have had in charge the improvement of the Columbia river, Snake river, and other rivers and lakes in Oregon, Washington, Idaho and Montana, and I am possibly as familiar with the general problem of these waterways as anybody else in the country, and I am satisfied that no one with anything like the knowledge that I have of these waterways would ever propose a ship canal through them as Mr. Scherzer has.

"The cost of the Nicaragua canal would be a mere bagatelle compared to the cost of such a Columbian-Mississippi canal and waterway. If such a waterway were deemed to be physically possible, which is extremely doubtful, its execution would be the most stupendous work ever undertaken by man. The pyramids of Egypt, the Great Wall of China and all the trans-continenal railroads put together would be a small job compared to this.

"Such a route would consist of at least 3,000 miles of canal and improved rivers, and the average cost per mile would be at least the average cost of the Nicaragua canal, or about one million and a quarter dollars. This would make the cost of the route something like four billions of dollars, and when it was done it would be almost absolutely useless, for it would take a ship with the best luck over a month to traverse it, longer than the time required to go from Portland or San Francisco to Europe via the Nicaragua canal!

"It seems to me that there are two great canals of vital importance to the people of this country, one is the Nicaragua or the Panama canal across the Isthmus, and the other is the barge canal across the state of New York from Lake Erie to the Hudson river. Both of these have been carefully studied for years, and the details worked out and the canals adapted to the natural and artificial conditions to be met with, and the commercial needs to be subserved. They have passed beyond the realms of the dreamer and irresponsible enthusiast, and their final fate is now under consideration, one by the people of the United States, and one by the people of the state of New York, and it is very much to be hoped that in this consideration no one will permit himself to be befuddled or have his attention too much attracted by such wild and glittering statements as those contained in this article of Mr. Scherzer.

"I have never given any study to the deep waterways route from Lake Michigan through to the Gulf by way of the Mississippi river, and do not care to express any opinion about it."

BRITISH EFFORTS TO EXTEND FOREIGN TRADE.

That Great Britain intends to make every possible effort to retain her present great foreign trade and to still further develop it is well understood by those who study commercial matters in this country. Her merchants and manufacturers are up and doing in many directions, and the London Times in to-day's issue proclaims a new movement, announcing that the commercial expedition organized by the Bristol Chamber of Commerce to visit the West Indies, in order to promote British trade in those islands. left Southampton yesterday on the Royal Mail steamship Orinoco. Continuing, the Times says:

The expedition, which is under the charge of Mr. de-Courcy Hamilton, who has had an extensive connection in the West Indies, is taking over 100 cases of samples of all descriptions of merchandise, most of the chief manufacturers within 100 miles of Bristol being represented. It is proposed to open an exhibition in Jamaica, to hold references, organize lectures, and in any possible way bring under the notice of the population of the West Indies the merits of the English goods shown. The opening of the new fast mail and fruit service between Bristol and Jamaica in January next has stimulated the merchants of the west of England in the direction of improving the export trade to Jamaica and the neighboring colonies, and it is hoped that a large increase in this business will result from the present venture.

MARSHAL HALSTEAD, Consul.

BIRMINGHAM, September 20, 1900.

A RECENT issue of the Journal of the Franklin Institute contains some notes referring to riveting and flanging pressures, by Mr. H. V. Loss. According to the author, for riveting ¾-inch and ⅞-inch rivets, pressures of 60 to 70 tons are required on the rivets, the work done being about 7,200 foot lb. for ¾-inch rivets and 9,500 foot lb. for ⅞-inch rivets. These figures, however, refer to bridge rivets; in boiler work, where rivets are shorter and the holes are usually better finished, less power is needed, and the pressures required are about as follows: For ⅝-inch rivets, 25 tons; for 1-inch rivets, 66 tons; for 1⅛-inch rivets, 75 tons; and for 1¼-inch rivets, 100 tons. For cold flanging of ¼-inch steel plates a pressure of 600 lb. to 740 lb. is needed per running inch, whilst with $\frac{5}{16}$-inch plates 710 lb. to 750 lb. pressure per running inch for ¼-inch plates and 380 lb. for ½-inch plates, though much will depend upon the heat of the plate at the time the work is done. For cold riveting, pressures of 300,000 lb. per square inch are needed. Very high pressures are needed for removing waves and wrinkles on a flanged surface, amounting to as much as 1,400 lbs. per square inch of surface.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

Clause in Charter Party Providing for Lien.—A clause in a charter party for cesser of the liability of the charterers, coupled with a clause creating a lien in favor of the shipowner, is to be construed, if possible, as inapplicable to a liability with which the lien is not commensurate. George W. Crossman et al. vs. William Burrill et al., 21 Sup. Ct. Rep. (U. S.) 38.

Admiralty—Suit for Limitation of Liability—Costs.—Where the owners of a vessel, in proceedings instituted by them for a limitation of their liability on account of the sinking of the vessel, deny any negligence or any liability, as they are permitted to do by admiralty rule 56, and that issue is decided against them, they may properly be taxed with the costs arising on such issue. The Longfellow, 104 Fed. Rep., (U. S.) 360.

Evidence of Seaworthiness.—Where all the direct evidence was to the effect that a steamer was seaworthy when she entered on her voyage, it cannot be inferred from the fact that a short time before she had met with two accidents, in one of which she was slightly injured, that her seaworthiness was thereby impaired, in the absence of affirmative evidence that she was in fact injured thereby in her hull or machinery. The Longfellow, 104 Fed. Rep. (U. S.) 360.

Carriage of Passengers—Duty of Inspection.—Where a steamship had a portion of her guards torn away by collision with a bridge pier, but an examination by competent men disclosed no injury to her hull or machinery, and only slight repairs were necessary, and she had been regularly inspected and pronounced staunch and seaworthy only three months before, the fact that no inspection was applied for after the accident does not constitute a failure to comply with Rev. St. § 4417, regarding inspection, which will render her owners liable for injuries to passengers or their effects under section 4493, creating such liability, where they have failed to comply with any of the provisions of that title, when it is not shown that any injury in fact resulted which impaired the strength or safety of the vessel. The Longfellow, 104 Fed. Rep. (U. S.) 360.

Shipping—Sinking of Vessel—Limitation of Owner's Liability.—The Longfellow, a large river steamer, carrying passengers and freight between Cincinnati and New Orleans, on leaving Cincinnati at a time when the water was high and the current swift, struck against the stone pier of a railroad bridge, and was broken in two and sunk, with the loss of her cargo and some of her passengers and crew. The owners had held her a day to await the clearing up of a fog; had provided her with competent officers, crew and pilot, and with a powerful tug to aid her in passing the bridges at the city. Held, that faults in her navigation producing the collision could not be imputed to her owners, as having occurred through their "privy or knowledge," within Rev. St. § 4283, so as to prevent the limitation of their liability under said section to the value of the vessel and pending freight. The Longfellow, 104 Fed. Rep. (U. S.) 360.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	4,625,000	713,000	335,000	71,000	1,988,000
" afloat	1,391,000	910,000	222,000	20,000	172,000
Chicago	11,524,000	1,340,000	3,040,000	596,000	211,000
Detroit	509,000	130,000	35,000	46,000	63,000
Duluth	5,642,000	276,000	650,000	249,000	138,000
Fort William, Ont.	1,168,000	.....	.....	.....	.....
Milwaukee	880,000	176,000	126,000	5,000	33,000
Port Arthur, Ont.	165,000	.....	.....	.....	.....
Toledo	722,000	1,052,000	949,000	19,000	.....
Toronto	93,000	.....	3,000	.....	200,000
On Canals	.....	.....	.....	.....	.....
On Lakes	.....	.....	.....	.....	.....
On Miss. River	.....	119,000	.....	.....	.....
Grand Total	61,082,000	8,138,000	9,988,000	1,290,000	3,482,000
Corresponding Date, 1899	57,153,000	11,585,000	5,382,000	1,422,000	2,891,000
Increase	.....	.....	.....	6,000	209,000
Decrease	412,000	624,000	887,000	.....	.....

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

MARINE PATENTS.

Patents issued December 11, 1900. Reported especially for the MARINE RECORD. We furnish complete copies of patents at the rate of 10 cents each.

663,348. Device for launching life-boats. William K. Kennedy, Jersey City, N. J., assignor of five-fifths to Henry Brinkman, James B. Morse, James Thompson, and Wm. Heavey, same place, and James Carnegie, Passaic, N. J.

663,493. Marine engine governor. Charles W. Gould, New York City, and Odin B. Roberts, Dedham, Mass., said Roberts assignor to said Gould.

MARINE RECORD

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CLEVELAND, O., DECEMBER 20, 1900.

THE ST. LAWRENCE CANAL.

A special from Ottawa says: Inquiries frequently reach the department of railways and canals, especially from Cleveland, Buffalo, Duluth and other inland shipping points, with respect to the Canadian 14-foot channel; and there appears to be an impression at some of the shipping points that there is not really a genuine 14-foot channel to the seaboard, but that it is shallow in places and vessels loaded well down in the 14-foot mark are liable to ground in some parts of the channel.

This impression is declared to be erroneous. Vessels drawing fourteen feet can go quite safely from any of the inland lake ports to Montreal without the slightest danger of grounding. If the new channel is strictly adhered to, and only such pilots are employed as have studied this channel and are thoroughly conversant with it.

Cases have occurred where vessels have grounded, but it has heen found the cause has been either that the pilot was out of his course or that the captain of the vessel had not gone down the canal, but preferred to take his chances outside in the river.

This year's experience has shown that a very thorough overhauling of the pilots is necessary. Few of them have taken the trouble to make themselves familiar with the buoying of the new channel, and they blunder into the old channel, and run their vessels ashore. Then the new channel gets blamed instead of the pilot.

A case in point occurred recently where the steamer Eureka, on her way from the Soulanges canal to Montreal, touched bottom at a spot within a hundred feet of a channel from twenty to thirty feet deep and 500 feet wide, which was thoroughly well bouyed. But the pilot apparently did not know that and insisted upon trying to go down the old channel where there was not water enough to float his vessel.

THE CHICAGO DRAINAGE CANAL.

The opinion prevails that Chicago has succeeded after strenuous effort in opening the way to the ultimate conversion of its great drainage canal into a ship channel, to be followed by the assumption of its control by the Federal Government and finally by the reinbursement of the Windy City by Congress for the immense expenditure incurred in the construction of the big sewer and its operation.

In the river and harbor bill there is an item approximating about $200,000 for a survey of certain sections of the Illinois and Desplaines rivers, with a view to obtaining a channel fourteen feet deep to connect the Mississippi river with Lake Michigan. Were such a channel built the drainage canal necessarily would become a part of it, in which event it naturally would come under the jurisdiction of the National Government. Then to induce Congress to pay back to Chicago the $25,000,000 or $30,000,000 which was expended on the canal would be the next step of the Illinois delegation.

It is said by government engineers that the construction of a 14-foot channel in the Illinois and Desplaines rivers would have to be followed by the dredging of the Mississippi river as far down as Cairo to that depth, else the other proposed improvement would be valueless. While the Mississippi at high water is almost that deep now, still at low water the depth is but six feet. To secure a uniform depth of fourteen feet from Cairo to Chicago by the route in question would cost, it is estimated, between $30,000,000 and $35,000,000. Therefore, before the Chicago hustlers witness the full realization of their supposed dream, Uncle Sam will have gone down into his pocket to the tune of something like $60,000,000 or $65,000,000.

THE LARGEST DOCK IN THE WORLD.

Liverpool's importance as a great sea port has been considerably increased during the last two years by the opening of the new "Canada" graving (dry) dock, a part of the general system of improvements upon which operations were commenced some years ago, and upon which about $25,000,000 are to be expended. This is the largest dock in the world. Its length is 925 feet 6 inches; width at entrance, 94 feet; width of top, 124 feet 2 inches; width of bottom, 94 feet; depth on sill and blocks at high water of ordinary spring tides, 32 feet. Its cost was about $100,000,000. The main body of the dock and the entrance are constructed of Portland cement concrete, 8 to 1, finished with concrete 6 to 1. The dock is filled by two rectangular culverts, one on each side of the entrance, each 8 feet high and 6 feet wide, closed by valves or cloughs of greenheart wood, worked by hydraulic power, with stand-by or emergency cloughs worked by hand power. The dock is emptied by means of of three centrifugal pumps each having a suction pipe 51 inches in diameter. These pumps will, if required, empty the dock when filled to high water level of ordinary spring tides (representing a volume of water of about 3,500,000 cubic feet), in an hour and a half. There is also one small pump 14 inches in diameter for dealing with leakage. The gates are opened and closed by means of hydraulic cylinders with multiplying sheaves and chains.

The Dock Board is having under construction a still larger dry dock of the following dimensions: Length, 1,000 feet; width of entrance, 95 feet; depth of sill at high water of ordinary spring tides, 37 feet. Improvements are also under way by which the depth of water over the sill of the "Canada" dry dock can be made anything desired.

THE suggestion of Ryerson Ritchie, late of Cleveland Chamber of Commerce, suggesting the organization of an American Board of Commerce, is being widely discussed. Speaking of it, President William R. Door, of the St. Paul Chamber of Commerce, said: Mr. Ritchie has sounded the key-note of what is going to be a great movement. The chamber of commerce of various cities as now constituted cannot make themselves felt beyond their own communities. A national body like the one proposed would be powerful for good. For example, should an iniquitous bill be pending in Congress, a special session of the national chamber could be held, and Congress would hardly dare to ignore its demands. My idea would be to have a call issued by every chamber of commerce in the country, to select one delegate and alternate—say, the president and vice-president. Let these delegates meet and organize the national chamber. The latter body should not be so large as to be cumbersome. It should be small and compact enough so that full, general discussion and emphatic action could be held and taken, which could hardly be done were the chamber unwieldy from point of numbers, when all the talking would be done by a few, resolutions adopted and the matter practically dropped. The delegates thus brought together could organize the national chamber and formulate details for active work. It is not necessary to add that such an organization must be absolutely non-partisan politically. Almost every local and national commercial body now in existence is from some cause or another bound hand and foot, and tongue-tied by political considerations.

THE output of anthracite coal from the mines in Pennsylvania during November was just a few tons short of five millions, and the largest of any month in the year. The total production for the year is estimated at 44,000,000 tons. Last year it was 47,665,000 tons.

EFFECTS OF THE CANADIAN PREFERENTIAL TARIFF.

The increase in the Canadian preferential tariff from 25 per cent. to 33⅓ per cent. in favor of imports from Great Britain has gone into effect. It is too early as yet to estimate the increased business resulting therefrom, but it is not believed that the effect on trade with the United States will be very noticeable. Canada imports from the United States in all one hundred different lines, while there are only four leading lines in which England is prepared to compete with us, viz., wool and manufactures, iron and steel and manufactures, cotton and manufactures, flax and hemp and manufactures.

There were two avowed objects in view in establishing the preferential tariff: (1) to divert Canadian trade from the United States to Great Britain as a protest against the enactment of the Dingley bill and (2) to cultivate closer relations with Great Britain.

It is manifestly impossible for England to supply Canada with what she has not; consequently, the new tariff in many cases diverted trade from home manufacturers instead of from the United States manufacturers. The loss, however, has not been serious to Canada as yet, as the imports from Great Britain from 1896 to 1899 only increased about $8,000,000, the normal growth in trade accounting for fully half this total.

On the other hand, United States exporters to Canada were stirred to renewed activity over the prospective loss of their valuable trade, and the results have surprised everybody. Instead of losing trade, the United States exports to Canada rose from $61,649,041 in 1896 to $101,642 950 (revised figures) in 1899, or nearly three times the total of British exports to Canada.

It was this unexpected result that largely decided the increase of the preferential tariff this year from 25 per cent. to 33⅓ per cent.

A protest now comes, however, from the Canadian manufacturers. At a meeting of manufacturers just concluded at Toronto, it was the unanimous decision that, "while the members of the association favored measures calculated to increase trade between Canada and other parts of the Empire," they were opposed to the increased preference of 8⅓ per cent., as it would injuriously affect certain lines of manufacture.

The Canadian industry that will feel the effect of the new tariff most seriously will be the woolen manufacturers. Over $20,000,000 are invested in Canadian woolen mills. As the imports from the United States last year of wool and manufactures were only $953,887, against $83,381,147 from Great Britain, it is evident that Canadian manufacturers do not see the particular advantage in being forced into stronger competition with Great Britain.

While trade was not diverted from the United States to Great Britain, as was prophesied in both the United States and Canada, still the second object of the preferential tariff has fully met the expectations of its framers. The British importers, as a result of the preference and as a result of a closer relationship between the Mother Country and the colony growing out of the Transvaal war, are undoubtedly favoring Canada whenever the market justifies it. Sentimental reasons influence trade always, other things being equal or nearly so, and United States exporters and searchers for trade will find this a strong factor in Canada's behalf. Exports from Canada to Great Britain has grown from $66,690,288 in 1896 to $99,091,855 in 1899, a growth of nearly 50 per cent. in three years.

An influential proportion of Canadian manufacturers and exportors is insisting that if England is to have the benefit of the preferential tariff, a proper quid pro quo from England would be an imperial tariff on food supplies, admitting the products from Canada, India, and the colonies free. This would be a severe blow to the United States and would prove a trade alliance that would at once lift Canada into a commanding position. In reply to these overtures, however, Mr. Joseph Chamberlin says, according to the Toronto Globe, "that, except on the basis of free trade within the Empire, he would not touch a preferental tariff with a pair of tongs." Canada is not by any means ready to accept free trade within the Empire, as British manufacturers would swamp her home industries; so this danger to United States trade interests seems to be remote.

HARLAN W. BRUSH, Consul.

NIAGARA FALLS, September 4, 1900.

The steamer Mary Mills was destroyed by fire Wednesday, while lying at McEachem's dock, Sturgeon Bay. The dock and warehouse were also destroyed, together with 300 tons of hay.

LICENSES SUSPENDED.

DULUTH, MINN., December 19, 1900.

MESSRS. MONAGHAN & CHALK, U. S. Local Inspectors of Steam Vessels, Duluth, Minn.

GENTLEMEN:—On November 28th, 1900, I received your communication under date of November 27th, 1900, stating that you were unable to agree upon a decision in the matter of complaint of Walter W. Wood against Frederick W. Lee and Tracy Warren, engineers on the tug W. B. Castle, for an alleged violation of Section 4449, U. S. Revised Statutes, by refusing to serve in their official capacities on said tug on August 6th, 1900, with mate Walter W. Wood, for the reason that said Wood was not a member of the Licensed Tugmen's Protective Association of Duluth, requesting me to investigate and decide the case.

Section 4452, U. S. Revised Statutes provides that "where there shall be a disagreement between the local inspectors, the supervising inspector, when so requested, shall investigate and decide the case." In accordance with the provisions of this act I proceeded to Duluth, Minn., and on December 17th, 1900, investigated the alleged violation.

At the opening of the case Frederick W. Lee appeared specially by his attorney, John H. Norton, for the purpose of making a motion to quash the proceedings and dismiss the complaint for the reason, in brief, that the supervising inspector had jurisdiction only where there was an appeal by some person wronged, and that there was no authority for an appeal by the local inspectors in case of disagreement. Copy of the motion is hereto attached. I over-ruled the motion, believing that the law conferred jurisdiction upon me in such cases, and that Treasury Department Decision No. 10279, of October 11th, 1890, had in effect so decided, and I proceeded with the investigation. Additional testimony was then submitted by Lee, which is also attached. The respondent Lee then in writing stated that he was satisfied to have a decision rendered on the testimony already taken, which agreement is also attached. I then proceeded to consider the case.

The complainant, Walter W. Wood, avers that on August 6th, 1900, he was employed as mate and pilot of tug W. B. Castle, that he boarded said vessel about 2:30 p. m., attempting to perform his duties. The master, Isaac G. Bain, sounded the whistle at 3 o'clock p. m. for all hands to come on board and repair to their stations, ordering complainant to cast off the mooring lines. As complainant was about to execute the order, Frederick W. Lee and Tracy Warren approached the master of the W. B. Castle, in presence of complainant, refusing to perform their duties as engineers on said vessel if complainant, Walter W. Wood, was employed as mate and pilot on same, giving as their reason for refusing, that they were members of an organization called The Licensed Tugmen's Protective Association, of Duluth, the said Wood not being a member of the association. The said Frederick W. Lee and Tracy Warren positively refused to perform their duties as engineers with any pilot not a member of said association. By reason of Frederick W. Lee and Tracy Warren refusing to perform their duties, Walter W. Wood was immediately discharged. By said action Lee and Warren acted in violation of Section 4449, U. S. Revised Statutes."

1. There are, in my opinion, some general features in this case undisputed, which assist materially in reaching a conclusion, viz. :

Captain Hill was sick and did not wish or intend to go out with tug W. B. Castle on that day. Wood went down to the tug and was at first willing to go out. Captain Hill said that he told Bain he would prefer the man Hall on Minnesota Point to go out with him, but there is not a word of evidence that he made any other objection to Wood in speaking to Bain, or told Bain that Wood could not go.

After Wood reached the tug a delay was made until Lee could row to Minnesota Point after Hall, though Captain Hill swore 2 p. m. was the time he intended to start the tug, when in fact she did not leave until about 5 p. m., and except upon the theory that Bain's testimony states the cause, no reason appears for this long delay. Bain was the master and he swore he hired Wood.

Now, why did not Wood go? And why was this charge brought against Lee and Warren? If Hill simply expressed a preference for Hall and that was all there is to the matter why was this charge, if fabricated, not made against Hill instead of Lee and Warren and why did not Wood go when it was found that they could not get Hall?

2. It is evident that there is something more to this matter. Captain Bain was the acting master, ostensibly, or legally clothed with the power of master, and whatever the private agreement might have been between Inman, Hill and Bain. If Bain hired Wood, and Lee and Warren refused to perform their duties, or, by saying they would not perform duty because of Wood's presence on the boat, hindered the services of the tug, they are liable to the same extent as if Bain had the full power of a master. In other words, Lee and Warren could not question the authority of Bain; as to the subordinates, he had in fact the powers of a master and they could not lawfully rebel against it.

The agreement between Inman, Hill and Bain, if there were such, is wholly immaterial, except as the fact might effect the credibility of witnesses.

Now as to the evidence. Captain Bain said he hired Wood and that Lee and Warren said that Wood was a dirty stinker; that they would not ride with him. That he could not go on the boat; that they would not act as engineers with Wood. That the dirty stinker could not ride on the boat anyway.

3. Captain Hill says he did not hear this, but admits that he might not have heard all that was said.

Negative evidence of this kind is of but little or no weight against affirmative evidence.

The defendant Lee answers certain questions "no," but he might truthfully do so and yet be guilty of the offense charged, that is to say, Lee might have said that Wood was a dirty stinker and that he could not ride on that boat, and yet answer just as he did.

It is not a question whether the lines were cast off, etc., but whether Lee and Warren hindered the work of the tug by their sayings or doings on the hiring of Wood.

Lee being a defendant, his testimony is not entitled to the same credence as that of a disinterested witness.

The evidence of Rottmann, fireman, is also of a negative character. Whatever he may say he cannot be certain that he heard all that was said between the parties. So much depends on the tone of voice, the grouping of, or assembling of the parties, etc., that one might easily be mistaken, besides he was not cross-examined, and according to Bain, was the step-son of Lee and not presumably disinterssted.

In view of all the circumstances I cannot believe that this charge is a mere fabrication. No motive for such action is shown or suggested and experience has shown that a motive usually exists in such cases.

The testimony that is pertinent is really between Capt. Bain, a disinterested person, and Lee and his step-son, and owing to the fact that no good reason can otherwise be found for Wood not going out with the tug after going to it. I am compelled to the conclusion that the testimony of Capt. Bain is true. If true, the offense is established.

Lee and Warren's talk was clearly the cause of Wood declining to go and a hinderance to the departure of tug W. B. Castle. The violent epithets and language prevented Wood staying and delayed the tug. No after consent of Lee would change or effect this. The offense was already committed.

I am of the opinion, therefore, Lee is guilty as charged, in acting unlawfully and in violation of Section 4449 of the Revised Statutes, of the United States, which in my opinion renders Frederick W. Lee and Tracy Warren justly liable to suspension or revocation of license under provisions of Section 4450, U. S. Revised Statutes. I, therefore, suspend the license of Frederick W. Lee and Tracy Warren, for a period of six (6) months, commencing December 20th 1900, and ending June 20th 1901.

Respectfully, JOHN D. SLOANE.
Supervising Inspector, Fifth District.

A PROTEST.

To the Editor of the Marine Record.

As sailors or those accustomed to handle on boats during the navigation season are the proper people to handle boats during the winter months,

We, the members of Local 101 of the I. L. A., or Grain Trimmers of Chicago, in session,

Resolved, That the captains and owners of boats be notified of the following action, viz: That no member of our association shall in future handle lines or in any way take part in the handling of a boat during its passage to or from any elevator, or shovel snow, or any other matter in which a sailor or deckhand shall be deprived of a means of obtaining a livelihood.

Signed, T. LOGAN, President.
P. HARMON, R. S.
C. TREVETT, S.

NOTES.

THE Roumanian railways are using a new fuel mixture consisting of lignite and petroleum. A special device has been constructed to properly burn the combination. In 1896 only 2,200 tons of petroleum were used in that country, while last year the amount was 15,200 tons. During the same time the consumption of lignite increased from 17,200 to 67,000 tons.

FROM figures just compiled at the Bureau of Navigation, Washington, D. C., it is shown that the vessels built in the United States from June 30 to November 30, 1900, were 495, of 149,963 gross tons. The principal items of the total are seven steel steamships on the Great Lakes (34,933 gross tons) and four smaller steel steamships (8,456 gross tons), which could pass through the new Welland canal, and one steel schooner-barge (2,790 tons). One steel steamship, John S. Kimball (1,588 tons, has been built on the Pacific for the coasting trade. One of the Atlantic six large wooden schooners of 15,652 tons is included.

CONSUL SMITH writes from Moscow, September 12, 1900, that in March last, the Russian Government decided to construct new dry docks in Vladivostock, which will be capable of admitting ships of 700 feet in length. The excavations for these docks are now being started. Near the docks will be constructed two large metallic shipbuilding yards capable of turning out ships up to 3,000 tons. The old dock, the Tsarevitch, is being rebuilt, and six new boilers have been ordered therefor. The work is superintended by Military Engineer Savitzky, with three assistants. The Government has also decided to construct and equip new mechanical shops.

BETHLEHEM Steel Company reports that a contract has been closed with General Electric Company for six more of the weldless field-rings of Bethlehem nickel-steel for the extension to the big power plant at Niagara Falls. These rings measure 142½ inches outside diameter, and 130¾ inside, leaving the walls 5⅞ inches thick. The width of face is 50¼ inches and the estimated weight of each ring is about 35,000 pounds. They will be worked up on a mandrel, under the hydraulic press, and are said to be among the largest forgings of this sort which have yet been produced. Among other orders now in hand at the Bethlehem works may be noted the shafts and engine forgings for one of the new ferry boats which are under construction at the yards of Harlan & Central R. R. Co. of N. J.

AT the opening of bids at Washington D. C., Dec. 7, for the construction of five battleships and six armored cruisers, there was quite an increase in the number of bidders, which included several firms of shipbuilders who have not heretofore put in bids for such large government vessels. Previously only three companies and the Government have built the big armored vessels, viz: The William Cramp & Sons Company, the Newport News Shipbuilding Company, and the Union Iron Works. These three concerns are also bidders for some of the new vessels. The new companies bidding for the battleships are: The Fore River Engine Company of Quincy, Mass., Moran Brothers & Co., of Seattle, Wash., and the Risden Locomotive and Iron Company of San Francisco; for the cruisers, Moran Brothers & Co., and John H. Dialogue & Son, Camden, N. J.

MR. N. Nolan, of 607 East 15th street, New York City, has invented a novel device, which he is very sanguine will increase the speed of screw steamers and save coal as well. His idea is to make the present solid shaft hollow and to have inside the hollow shaft a closely fitted solid shaft, which is furnished with tongues on a portion of its length fitting into grooves in the hollow shaft. The object of this is to lock both shafts when in use or to disconnect them. On the outboard end of the solid shaft is the propeller. The scheme of Mr. Nolan is to admit steam into the hollow shaft near the crank, so that the solid shaft can slide aft and forward, on the principle of a piston, a slide valve being provided for this purpose near the inboard end of the hollow shaft. Then when everything is ready Mr. Nolan intends to start the shaft revolving in the usual way, and in addition send backward the solid shaft at a good speed while it is revolving and draw it slowly in again at the end of the stroke. The idea is that the backward stroke will shove the vessel forward in addition to the propelling force of the screw, greatly increasing the speed. He does not state how the long arm of the solid shaft, after it leaves the cylinder, is to support the great weight of itself and the screw, nor does he figure the counter resistance of the screw when coming forward after its backward kick; or other details which might also require consideration.

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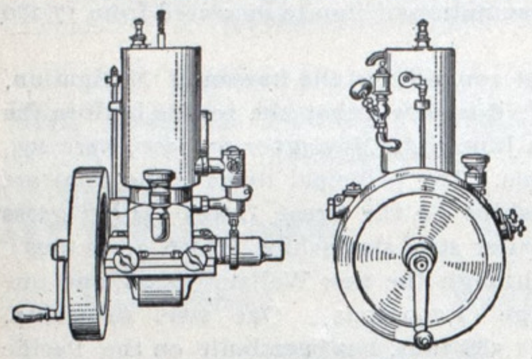

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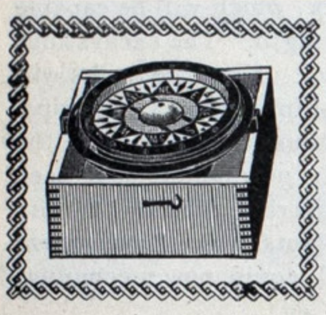

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SEA LIGHTS THAT LIVE.

Almost everyone who has ventured on the never surfeited sea must have noticed the occasional brilliant displays of phosphorescent light afforded by minute living creatures on its surface. The wake is not infrequently defined as clearly in this way as though the ship herself were a huge lump of phosphorus, driven through a yielding body possessing a definite amount of friction. In a steamship, more especially, the globe-trotter has many an opportunity of witnessing such a never-to-be-forgotten exhibition of the workings of nature. Every sea that breaks on board occasionally appears as though it were a cascade bearing innumerable miniature electric lights and each wave crest is distincly indicated by the phosphorescent glow, due to the presence thereon of countless tiny sea creatures. As Shelley sang:

> "While the surf, like a chaos of stars, like a rout
> Of death flames, like whirlpools of fire flowing iron,
> With slendor and terror the black ship environ,
> Or like sulphur-flakes hurled from a mine of pale fire
> In fountains spurt over it."

Allowing a little for poetic license, or what Jack would term "coming up," Shelley's description of a phosphorescent sea is not so very far removed from sober fact. That celebrated American shipmaster, Capt. S. Samuels, who brought the Dreadnaught from Sandy Hook to Queenstown in nine days and fifteen hours, thus making the sailing ship record, has given, in his autobiography, a vivid word picture of his experience at Java. Men-of-war boats towed out to sea the good ship then commanded by Capt. Samuels. One hundred voices kept tune, while as many oars kept time. The oars seemed to dip into molten silver, and as they rose myriads of diamonds appeared to drop from them. To enhance the enchantment of the scene, the many sharks which abound in those waters darted hither and thither, leaving streaks in their wake which were only comparable to forked lightning. In those days there was time for a full appreciation of the romance of the sea. Sir Wyville Thompson, during the cruise of H. M. S. Challenger, found it quite an easy matter, when off the Cape Verdes, to read the smallest print in his cabin solely by the light emitted by the tiny sea creatures churned up by the ship. Her wake was simply a blaze of phosphorescence. At Pabellon de Pica, on the west coast of South America, some very luminous sea surface displays are experienced by vessels at anchor in the bay. During the day the surface water alongside appeared to be of a dirty purple color, although quite colorless in a glass. Every night for quite a week, without intermission, the sea surface was so brilliantly phosphorescent that the time could readily be determined by its aid from a watch, and the ship's names on their sterns were plainly visible to passing boats. Turning now to another part of the world, a reference to a log book shows a precisely similar result. Not far from Shanghai the sea surface was extremely phosphorescent; the light was vivid enough to permit of moderate print being read in the flashes, although the night was otherwise very dark.

Outside of Aden bay a species of luminous vapor appeared to linger tremulously on the sea surface. The belt was about 300 yards in length, and connected with very luminous water to the eastward. Probably this semblance of vapor may be rightly attributed to an optical illusion, and the cause sought for among the luminous little creatures of the sea surface directly beneath. At times the sea surface is like a vast heaving mass of metal at white heat, rather than an abiding place for tens of thousands of tiny points of light. If anything, this form of lumiousity is the more awe-inspiring. Off the entrance to the Persian Gulf the sea suddenly became smooth. In one short hour the whole horizon seemed gorgeously illuminated. Shortly afterwards, the vessel entered a large area of water of most dazzling brilliancy; the sea was exactiy similar to quicksilver and the propeller churned up water which looked like milk. A bucket of water drawn from over the side seemed quite clear, but some placed in a bottle plainly indicated the presence of countless animalculæ. Just eastward of Socotra a similiar experience is not uncommon. Off there a steamship commanded by Capt. J. McKirdy, R. N. R., now marine superintendent of the Shaw, Savill & Albion Co., ran into a large patch of water which looked as white as milk. Although the night was dark a vessel's starboard light of green would have been difficult to pick up under its influence. Half way between Socotra and Colombo a sailing ship had the sea surface suddenly assume a milk white appearance at night, without a sparkle. Next night the curious creatures again made themselves similarly manifest. She seemed to be sailing through an extensive meadow covered with a spotless sheet of snow. Within an interval of a few hours, over one hundred flying fish came on board and were picked up by the crew. Apparently the ocean area thus affected was an approximate square of four degrees side. Occasionally the sea is phosphorescent, while at the extremities of masts and yards are examples of electric discharge known as corposants. Some years ago the Wisconsin, when near Sandy Hook experienced a terrible thunderstorm. At each masthead and yardarm there flickered a corposant of remarkable splendor, and all around, as far as the eye could reach, the sea appeared to be a million dimples of liquid, shining silver. Not infrequently, if a tumblerful of luminous water be kept in a dark room for some hours and apparently phosphorescent properties have departed from it, they can be renewed with less effect by agitating the water with the fingers. Sailors are seldom provided with microscopes or Latin dictionaries. Hence it is worse than affectation, it is a downright fraud on a confiding public, to boldly rush into print with a detailed descriptiou of the appearance and family of the tiny sea creatures which give rise either to the display of myriads of points of light, or to the even more effective glow like molten metal. On one occasion, when the ship's wake looked like liquid fire, the sea was found to contain some substances about three inches long, of oblong shape, and resembling the electric light in color. This occured a little to the northeast of Rio Janeiro. When near St. Paul's Island the sea was luminous in patches and a bucket of water drawn from over the side readily revealed the cause thereof. Several strips of blubber-like substance, eight inches in length, and having a central canal from end to end, were well in evidence. On taking these particular people of the deep sea into a dark room they made it so vividly illuminated that the time by a small clock could be clearly determined without the aid of any other light. Some suppose there are not animalculae present where the color of old ocean is blue, and consequently phosphorescence cannot then exist. Others believe that a phosphorescent display is the forerunner of a storm. As a matter of fact, blue water is luminous, and fine weather frequently follows a display. Any description nearer than this is out of place except in a treatise by a scientist of repute.—Syren and Shipping.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

The declining tendency in grain freights to which we referred in our preceding report, whilst moderately affecting prompt tonnage, has become quite acute in respect to remoter steamers and we have to-day to report the charter of a large boat for early January loading, at 2s. 10½d. to picked ports. Unless owners in the near future begin to withhold their tonnage from the market we fear that still lower rates will be established, since the inquiry, as customary at this time of the year, is far from active, and business will largely depend on the amount of concessions obtainable on new trades.

A few charters for cotton have been effected from Savannah, as anticipated, but very little further enquiry prevails. The demand from the Gulf is likewise inactive and fixtures unlikely to continue unless at concessions in rates; whilst we can report some fixtures for timber, we are looking for some still further decline in owners' figures as the only means of broadening the business.

Business in sail tonnage has again been very limited, doubtless in consequence of the small available supply of vessels and owners firm ideas, a position which particularly applies to long voyage ships. Otherwise we find nothing of interests to refer to.

GRAND HARBOR American Association of Masters and Pilots of Steam Vessels will convene in Washington, D. C, Monday, January 21st, 1901, 10 oclock a. m. Headquarters for the officers and representative will be Riggs House, opposits Treasury Department.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DIST.,
CHICAGO, ILL., December 15, 1900.

CLOSING OF LIGHTS AND FOG SIGNALS FOR THE WINTER OF 1900–1901.

Notice is hereby given that Wangoshance light and fog-signal station, Skilligallee light and fog-signal station, Beaver Island light and fog-signal station, Petosky Beacon light station and Portage Lake Pierhead light station, Michigan, and Tail Point light and fog-bell station, Grassy Island (lower) and Grassy Island (upper) light station and Murphy's dock beacon light station, Wisconsin, have been closed for the winter of 1900–1901.

By order of the Light House Board.

F. M. SYMONDS, Commander, U. S. Navy,
Inspector 9th L. H. District.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT HOUSE INSPECTOR,
ELEVENTH DISTRICT, DETROIT, MICH., Dec. 13, 1900.

Notice is hereby given that the following-named aids to navigation in the 11th Light-House District (in addition to those referred to in Notice to Mariners of Dec. 9 and 13, 1900) have been discontinued until the opening of navigation, 1901:

LAKE SUPERIOR.—Big Bay Point Light and Fog-Signal. Portage Entrance and Portage Range lights. Ontonagon lights.

LAKE HURON.—Saginaw River Range. Port Austin light and fog-signal. Spectacle Reef light and fog-signal.

LAKE ST. CLAIR.—All gas buoys. Grosse Point light-vessel. Isle au Peches Range lights.

Buoys and light-vessels are replaced by winter markers.

Notice is hereby given that the following-named aids to navigation in the 11th light-house district (in addition to those referred to in notice to mariners of Dec. 5, 1900) have been discontinued until the opening of navigation, 1901:

LAKE SUPERIOR.—Grand Island light station; Grand Island harbor light station; Grand Island harbor range lights; Fourteen mile point light and fog signal; Big Sable light and fog signal; La Pointe and Chequamegon Point light and fog signal. Post lights in Duluth-Superior Harbor and Portage lake and river.

ST. MARY'S RIVER.—St. Mary's Falls canal light station; Brush Point light. All gas, can and nun buoys including Detour and Gros Cap Reef.

LAKE HURON.—Round Island light and fog signal, Straits of Mackinac; Cheboygan Crib light; Poe Reef light vessel No. 62; Lake Huron light vessel No. 61.

ST. CLAIR RIVER.—Head of shoal gas buoy No. 3 and all other buoys. The Grosse Pointe light vessel, Isle aux Peches range lights and the gas and spar buoys in Lake St. Clair, cannot be depended upon after the 14th instant. All buoys when removed are replaced by winter markers and light vessels are replaced by spar buoys.

By order of the Light-House Board:

J. C. WILSON, Commander, U. S. Navy.
Inspector 11th Light-House District.

Capt. Harding, of the Engineer Corps of the Army, has recommended that the harbor of Muskegon be improved with a view to obtaining a depth of twenty feet and a uniform width of three hundred feet from the external to the internal of Lake Michigan. Capt. Harding presented a plan for the further improvement by dredging, a pier extension and revetment of an estimated cost of $380,000. He says that there is no question of a desirable enlargement of the scope of the existing project of this harbor. His views are concurred in by Colonel Barlow, the division engineer, under whose jurisdiction this work will come.

A THRIVING INDUSTRY.

The American Ship Windlass Co., of Providence, R. I., have delivered this year for the lakes, and are now building, the following machines. It will be seen that with one or two exceptions, every craft now building on the lakes will be supplied with Providence machines.

Gen. Orlando M. Poe, Cleveland, No. 9 steam capstan windlass; No. 7 steam pump brake windlass; No. G. steam capstan.

Robert W. E. Bunsen, Cleveland, No. 9 steam capstan windlass; No. 7 steam pump brake windlass; No. 4 steam towing machine.

William Castle Rhodes, Cleveland, No. E steam capstan.

Capt. Thomas Wilson, Cleveland, No. 8 steam capstan windlass; No. G steam capstan.

J. Emory Owen, Cleveland, No. 3 steam towing machine.

Robert Wallace, Cleveland, No. 2 steam towing machine.

Quito, Cleveland, No. 1 steam towing machine.

Minnesota, Cleveland, No. 1 steam towing machine.

Iron Chief, Cleveland, No. 1 steam towing machine.

Charles A. Street, Mt. Clemens, Mich., No. 3 steam capstan windlass.

Cartagena, West Bay City, Mich., No. 5 steam capstan windlass; No. 3 steam towing machine.

Shenandoah, West Bay City, Mich., No. 3 steam towing machine.

Alfred Mitchell, St. Clair, Mich., No. E steam capstan.

Darius Cole, South Haven, Mich., 2 No. B steam capstans.

Elizabeth Hyde, Ferrysburg, Mich., No. A steam capstan.

Syracuse, Buffalo, No. 6 steam capstan windlass; No. E steam capstan.

Commodore, Buffalo, No. 6 steam capstan windlass; No. E steam capstan.

Boston, Buffalo, No. 6 steam capstan windlass; No. E steam capstan.

Paraguay, Duluth, No. 8 steam capstan windlass.

Asuncion, Duluth, No. 8 steam capstan windlass.

Schooner Pretoria, West Bay City, Mich., No. 7 steam pump brake windlass.

Car ferry Muskegon, Saginaw, Mich., No. G steam capstan.

Barge Tarpon, Marine City, Mich., No. 5 steam capstan wlndlass; No. C hand capstan.

Barge Homer Warren, West Bay City, Mich., No. 2 capstan windlass.

Barge Armenia, Milwaukee, No. 2 steam towing machine.

Steel barge Loyalty, Duluth, No. 8 steam capstan windlass; No. 2 steam towing machine.

Steel barge Liberty, Duluth, No. 8 steam capstan windlass; No. 2 steam towing machine.

Fire boat W. S. Grattan, Buffalo, pump brake windlass with iron towing bitts.

Mann Brothers, Milwaukee, No. 2 pump brake windlass.

U. S. Light-House tender Alice M. Gill, Milwaukee, No. 3 steam capstan windlass.

Yacht Pryun, Chicago, No. 00 yacht capstan.

Algoma Central Railway Co., Ontario, 4 No. 3 steam towing machines.

Hull No. 43, building by Chicago Ship Building Co., No. 8 steam captan windlass; No E steam capstan.

Hull No. 44, building by Chicago Ship Building Co., No. 8 steam capstan windlass; No. E steam capstan.

Hull No. 45, building by Chicago Ship Building Co., No. 8 steam capstan windlass; No. E steam capstan.

Hull No. 46, building by Chicago Ship Building Co., No. 8 steam capstan windlass; No. E steam capstan.

Hull No. 47, building by Chicago Ship Building Co., No. 8 steam capstan windlass.

Hull No. 48, building by Chicago Ship Building Co., No. 8 steam capstan windlass.

Hull No. 305, building by American Ship Building Co., Lorain, No. 8 steam capstan windlass; No. F steam capstan.

Hull No. 306, building by American Ship Building Co., Lorain, No. 8 steam capstan windlass; No. F steam capstan.

Hull No. 307, building by American Ship Building Co., Lorain, No. 8 steam capstan windlass; No. F steam capstan.

Hull No. 308, building by American Ship Building Co., Lorain, No. 8 steam capstan windlass; No. F steam capstan.

Hull No 405, building by American Ship Building Co., Cleveland, No. 8 steam capstan windlass; No. F steam capstan.

Hull No. 406, building by American Ship Building Co., Cleveland, No. 8 steam capstan windlass; No. E steam capstan.

Hull No 138, building by Detroit Ship Building Co., No. 9 steam capstan windlass.

Hull No. 139, building by Detroit Ship Building Co., No. 8 steam capstan windlass; No. F steam capstan.

Hull No. 140, building by Detroit Ship Building Co., No. 8 steam capstan windlass; No. F steam capstan.

Hull No. 500, building by Superior Ship Building Co., No. 8 steam capstan windlass; No. F steam capstan.

Hull No. 501, building by Superior Ship Building Co., No. 8 steam capstan windlass; No. F steam capstan.

Hull No. 600, building by West Bay City Ship Building Co., No. 6 steam capstan windlass; No. E steam capstan; No. 2 steam towing machine.

Hull No. 601, building by West Bay City Ship Building Co., No. 6 steam capstan windlass; No. E steam capstan; No. 2 steam towing machine.

Hull No. 602, building by West Bay City Ship Building Co., No 8 steam capstan windlass; No. F steam capstan.

Hull No. 603, building by West Bay City Ship Building Co., No. 8 steam capstan windlass: No F steam capstan.

Captain William Bonnah, who sailed the schooner H. H. Badger last season, has just closed a deal with the Detour Lumber Co., of Chicago, whereby he secures possession of the schooner Narragansett. Capt. Bonnah will sail the vessel himself during next season. The purchase price is not stated, but the boat is worth about $2,000. She is 39 years old.

Incorporation papers of the Port Clinton Navigation Co. were forwarded to Columbus on Monday. The company will capitalize at $35,000. Three lumber and stone vessels will be operated between the upper lakes and Lake Erie. Two of the boats are the steamer Leland and consort Montgomery, formerly of Cleveland, and the new company has an option on a third vessel also. The incorporators are: Alexander Hitchcock, George Maul, George A. True, John Orth and B. W. Wilson, all of Port Clinton.

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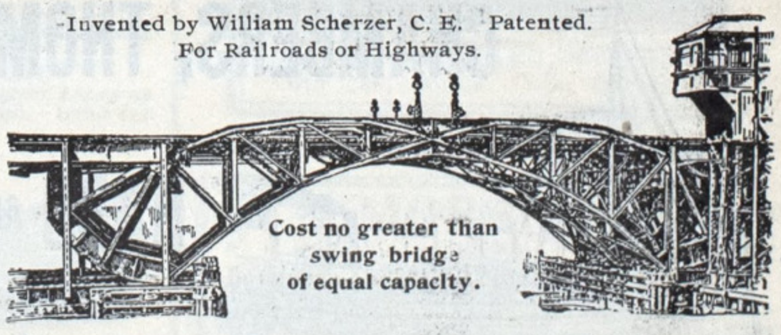

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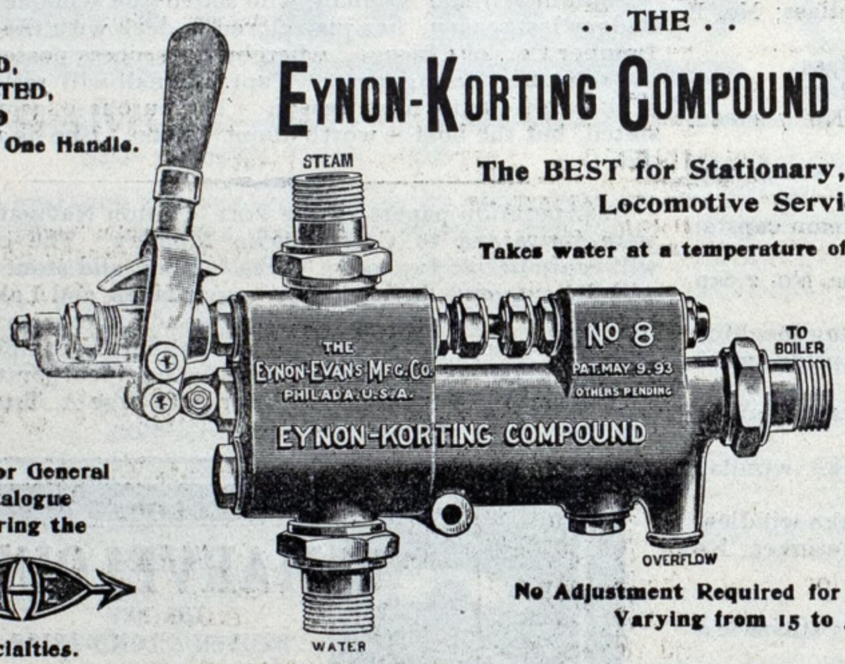

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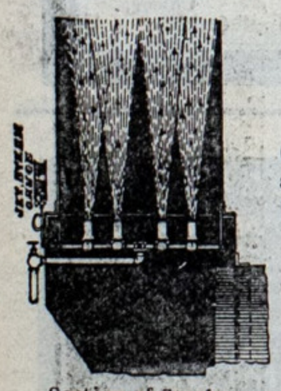
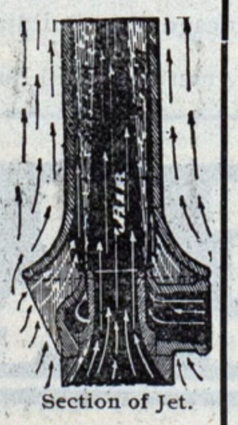


Section of Stack.



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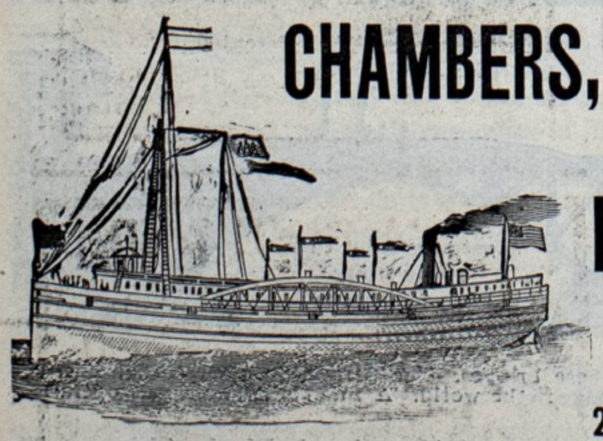

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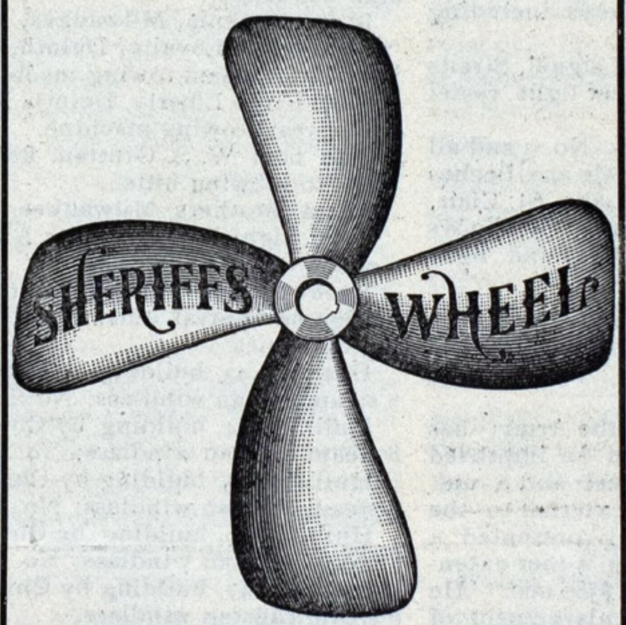

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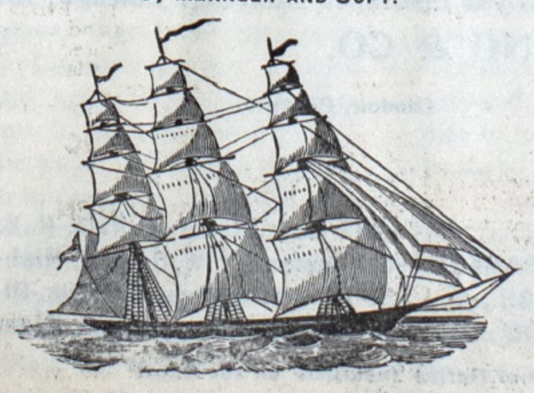

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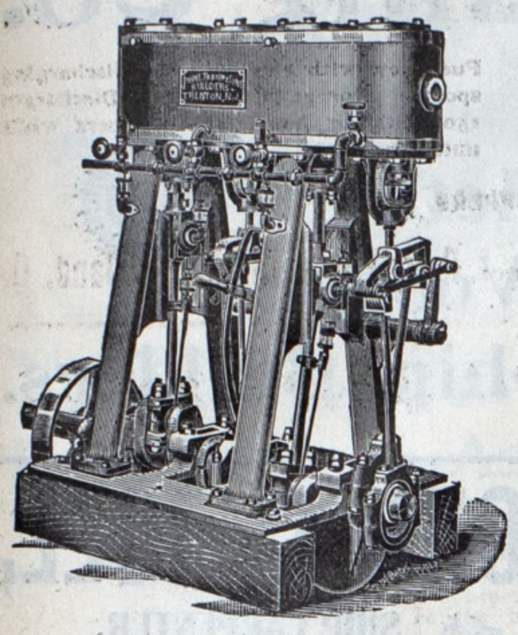

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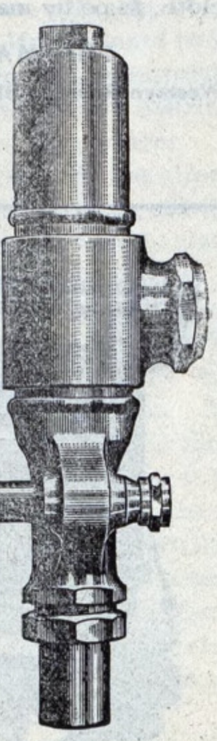

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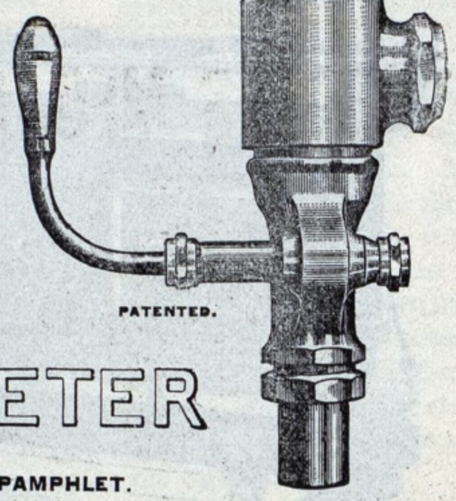

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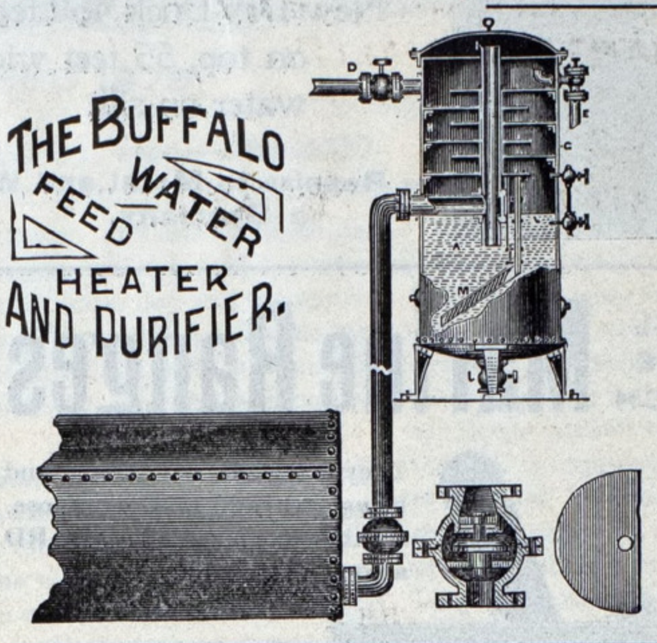

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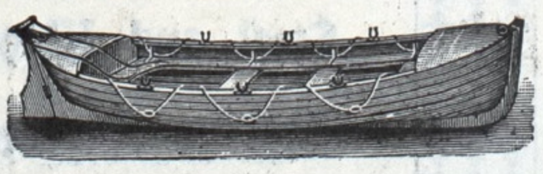

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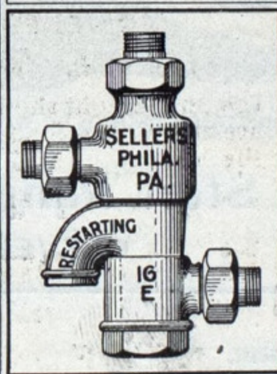

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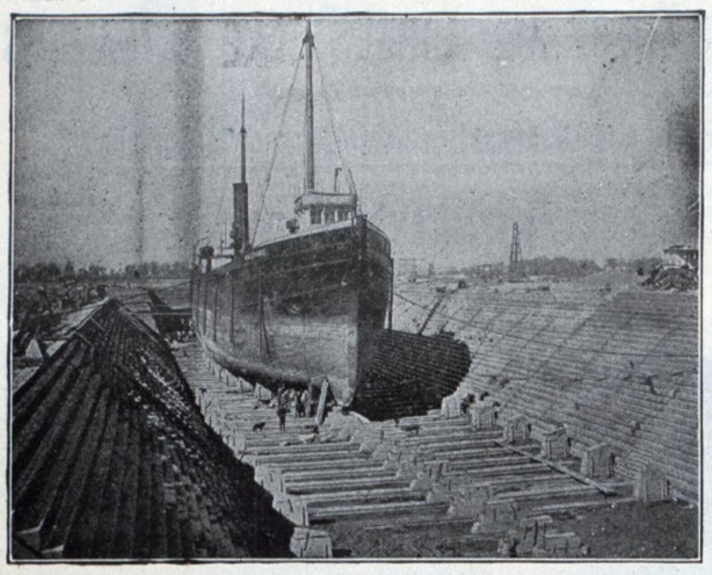

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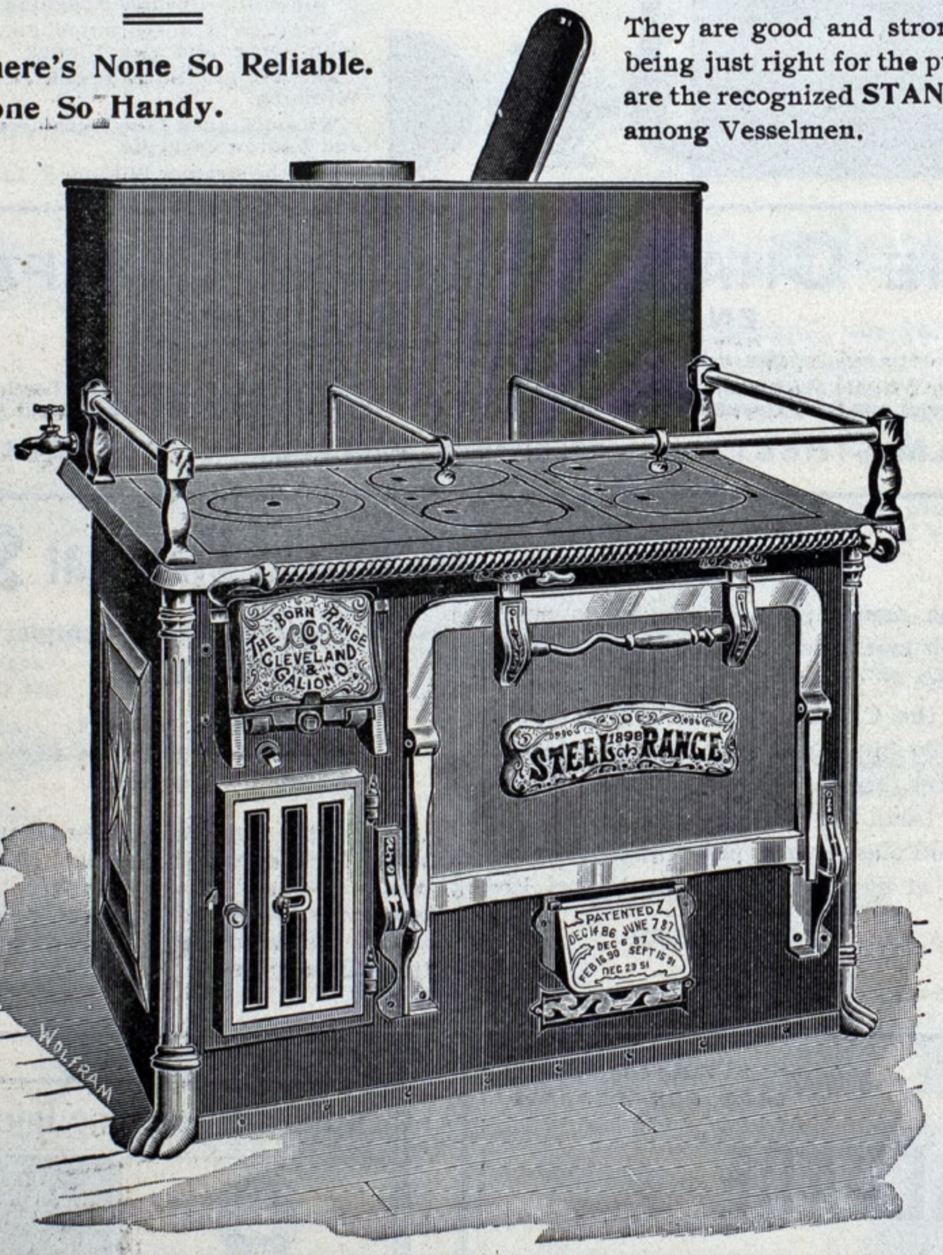

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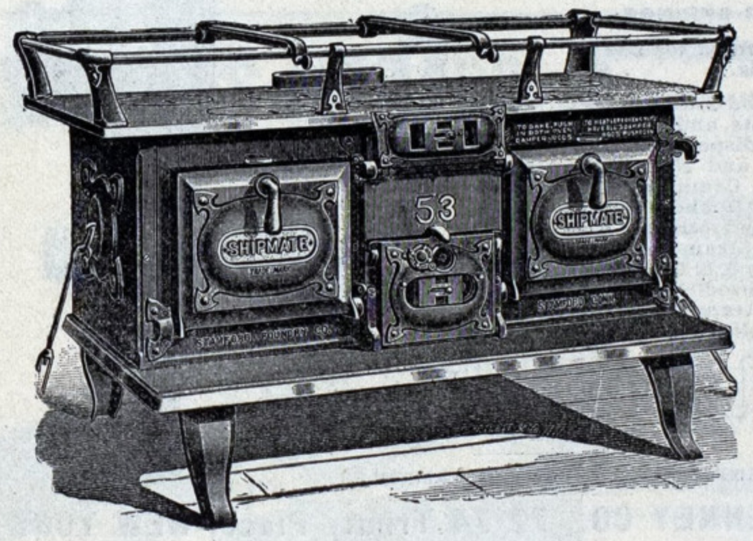

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